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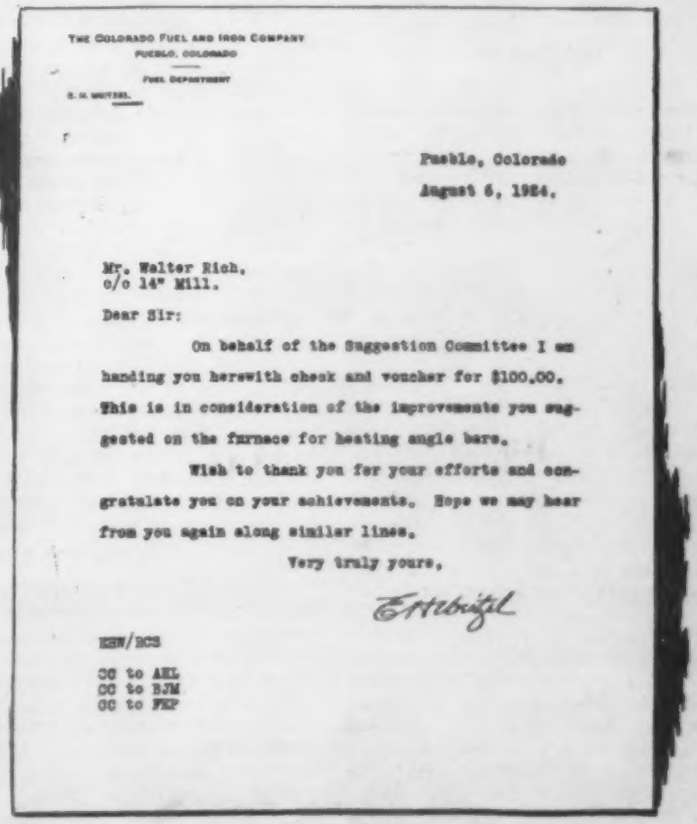
Industrial Relations Plan Stands Time Test

Colorado Company's Program Embraces Works Council, Provisions for Recreation and Education, Pensions, Medical and Surgical Treatment and Encouragement of Practical Suggestions from Employees

BY GILBERT L. LACHER

IF the labor problem could be solved by discussion alone, it would long since have ceased to perplex industry. No single question has received wider study; no subject has been treated from more numerous angles. In fact, to venture any opinion on the labor problem today is to run the risk of saying something trite. It is refreshing, therefore, to depart from an abstract treatment of the theme and to confine one's attention to actual performance. Theories, systems and plans are legion, but they are all dependent for their success or failure upon an uncertain factor, the human element. Indeed, the manner in which a given plan is applied may have more to do with its effectiveness than its own intrinsic merit.

How hackneyed it is to say that labor and management have common, and not antagonistic, interests. This statement, however, assumes the guise of reality when, through sincerity of purpose, frankness in discussing mutual problems and openness in facing fortuitous disturbances which threaten industrial concord, management succeeds in winning the confidence of employees. Such an attitude has actuated the Colorado Fuel & Iron Co. in the initiation and conduct of its industrial relations program.



THE COLORADO FUEL AND IRON COMPANY
PUEBLO, COLORADO
FUEL DEPARTMENT
E. H. WEITZEL

Pueblo, Colorado
August 6, 1924.

Mr. Walter Rich,
c/o 14" Mill.

Dear Sir:

On behalf of the Suggestion Committee I am handing you herewith check and voucher for $100.00. This is in consideration of the improvements you suggested on the furnace for heating angle bars.

Wish to thank you for your efforts and congratulate you on your achievements. Hope we may hear from you again along similar lines.

Very truly yours,

EHW/RCS

CC to AEL
CC to BJM
CC to FKP

THE Colorado Company Consistently Solicits Suggestions from Its Employees, Giving Cash Awards for Ideas that Prove Practical. The letter written by E. H. Weitzel, vice-president and general manager, accompanied a check of $100 for a suggested improvement to a furnace for heating angle bars

Underlying the Colorado plan has been an unwavering fundamental belief that the mutual interests of management and labor may be effectively promoted through frequent conference and voluntary cooperative effort. A pioneer in cultivating closer contact with its employees, the Colorado company did not perfect its program without encountering difficulties, but these have been largely overcome and have only served to strengthen faith in the wisdom of an undertaking which has now stood the test of actual experience and has long ago emerged from the realm of mere theoretical speculation.

Foremost in the Colorado company's labor policy is a works council plan which was adopted by a majority vote of employees at its mines in October, 1915, and at its steel works in May, 1916. Other features of its program include medical and surgical treatment of employees, recreational and educational advantages, a pensioning plan, a system of company stores, and the encouragement of practical suggestions from employees for improved practice.

The plan for joint representation of employees and management in industrial relations was worked out by J. F. Welborn, president, John D. Rockefeller, Jr., E. H. Weitzel, now vice-president and general manager, and

William L. Mackenzie-King, the present Premier of the Dominion of Canada.

According to its own statement, "the Colorado Fuel & Iron Co. recognizes that there are four parties to industry—labor, capital, management and the community. Its policy is to have industrial relations within the company so regulated that the rights of all these parties shall be recognized and respected. This it seeks to effect by following in its industrial relations a clearly defined method of joint representation and procedure adopted by the employees and the management in joint conference and subject to amendment only in like fashion."

For the purpose of electing representatives the employees are grouped into natural divisions and once a year each division, by secret ballot, elects representatives on the basis of one for each 150 employees. The representatives of the management are appointed by the president of the company. A joint conference of employee and management representatives is held at the steel works and at the various mines and quarries by districts in January, at which time joint committees are selected. Each committee is composed of 12 members for the steel works, and six members for each of the other districts, of whom the employees' representatives designate one-half and the management the other half. There are separate committees on Cooperation, Conciliation and Wages, on Safety and Accidents, on Sanitation, Health and Housing, and on Recreation and Education. The committees are required to meet at least quarterly and to prepare complete reports of their proceedings for submission to an annual joint meeting of all representatives held in December. In addition to the joint conferences of January and the annual meeting at the end of the year, joint conferences of employee and management representatives are held also in May and in September.

Committees Have Real Authority

The standing committees are given real authority. For example, a grievance or a dispute may be referred consecutively to foreman, superintendent or the president's industrial representative, and if a settlement is not reached by that time, the matter may be presented to the Joint Committee on Cooperation, Conciliation and Wages, a majority decision of which is binding on all parties. In the event that this committee is deadlocked, it may select as umpire a third person who shall sit in conference with the committee and whose decision shall be final. If the committee cannot agree on an umpire, it may refer the question to arbitration or, in Colorado, request an investigation by the State Industrial Commission.

During the nine years in which the works council plan has been in effect, only two questions have been appealed to outside parties, in both instances to the Colorado State Industrial Commission. One case was of minor importance and involved a young workman at one of the coal mines who had been asked to divide his time, during a dull period, with a carpenter who had been injured and was unable to follow his regular occupation. The only serious case came before the Industrial Commission in 1921 when the company was forced to economize both on account of slack business and in order to meet wage reductions made in certain sections of the Middle West and East, particularly by those supplying coal to competing steel plants. In August of that year petitions were circulated at the company's different coal mines asking for a reduction in wages and where the proposals were approved by a majority vote of miners, notices were posted that lower wages were in effect. The United Mine Workers then appealed to the Industrial Commission for an investigation, whereupon hearings were held and a decision was rendered. In both this instance and that mentioned above, the commission upheld the management.

Wage Reductions Accepted

It is interesting to note at this point that three consecutive wage reductions totaling 35 per cent, were accepted by the company's steel works employees between Jan. 1 and Aug. 1, 1921. These were agreed upon in joint conference and were followed neither by appeals to higher authorities nor by strikes.

In fact, only three strikes have occurred since the joint representation plan has been in force, and in each case were attributable to interference by outside interests. When the nation-wide steel and coal strikes were called in 1919, employees of the company went out largely because of sympathy for their fellow workmen in other parts of the country rather than because of any grievances against their own management. At the Minnequa works, the management called the workers together prior to the strike for a frank discussion of the situation. Most of the strike demands had already been fulfilled at the Colorado steel plant and the men admitted that they had no complaint to offer as to their working conditions. A few insisted on recognition of the union, a demand that the management was not willing to grant, but it was apparent that the appeal which really determined the employees' course of action was that their participation in the strike might aid men in other steel plants to obtain conditions of employment comparable with their own. Whatever were the dominant reasons, fully 85 per cent of the employees of the Minnequa works struck. The strike, however, was short-lived and it was not long before a "Back-to-Work" movement was organized with the result that applications for reinstatement were received in large numbers long before the strike was "officially" declared ended. The coal strike, on the other hand, did not seriously affect the company's coal production.

Confidence Unshaken

The experience at Minnequa works was naturally disappointing to the management, but it did not shake its confidence in the success of its industrial relations plan. That this faith was justified is indicated by the voluntary acceptance of wage reductions during the subsequent industrial depression of 1921. This was regarded as convincing testimony that the men appreciate that the plan is on a give and take basis for the mutual interests of all concerned. No doubt they recalled the numerous occasions when the management had freely accepted proposals by the employees, some of which placed the company in a difficult competitive position. A notable example was the joint action of representatives of employees and management on Oct. 30, 1918, which changed the hours of labor in the steel works to eight, effective Nov. 1. Thus the Colorado company anticipated by five years the general abandonment of the 12-hr. shift throughout the country. It is also to be observed that all departments of the Minnequa works are on an 8-hr. shift basis, whereas in general practice today continuous departments are on 8-hr. shifts and other departments on 10-hr. turns. Whether eight hours or ten hours comprise a proper working day is open to controversy and the Colorado management would be the last to take sides on the question. In its own particular case, it was confronted with a decided preference on the part of its employees for a uniform 8-hr. shift and, accordingly, it accommodated its operations to meet that wish.

The Third Strike

The third strike experienced by the company occurred in 1921, when at the instigation of union labor agitators employees at certain coal mines quit work because of a proposed decrease in wages. In this case, which had already been referred to, wages were cut only at mines where a reduction was approved by a majority vote. Moreover, the employees who went out were located at operations where the wage reduction had not been adopted. This partial strike came to an end with the decision of the State Industrial Commission upholding the company.

Makes No Discrimination

Notwithstanding its vexing experiences with union organizations, the Colorado company makes no discrimination against any of its employees on account of membership or non-membership in any society, fraternity or union, and specifically binds itself in this regard in the articles of agreement governing the joint representation plan. There is nothing to prevent a union member from being elected a works council representative. The only qualifications required to make one eligible for office are that he be a citizen of the United

States, 21 years of age or over, and that he have a record of at least one year of continuous service with the company immediately preceding the month in which elections are held. Both nominations and elections are held by secret ballot, however, to insure the untrammeled expression of the real choice of the voter.

What type of employee is elected to office? When the joint representation plan was first adopted, there were times when loud-mouthed, pugnacious individuals were elected by the employees. This was due, no doubt, to a misconceptnon of the nature of the plan—a belief that aggressiveness would be required to make any headway with a supposedly obdurate management. The employees soon found out, however, that they were not entering a fighting game, but, on the contrary, the conference method employed in the works council plan placed a premium on level-headedness, fairness, and calm deliberation. Out of 89 employee representatives elected last year at the steel plant, iron mines, coal mines and limestone quarries, 85 per cent were married men. The average age was a little over 37 years, and the average length of service with the company 11 years.

In its articles of agreement in connection with the joint representation plan, the company has committed itself to pay wages and provide working conditions similar to those in effect at the plants of competing companies. Specific provisions to this effect follow:

"The wage rates now in force in the several subdivisions conform substantially with wage rates for like work under similar conditions in effect with companies whose products are sold in active competition with products of the Colorado Fuel & Iron Co., and that similarity of rates with those competing companies shall be maintained. The working conditions now in force shall continue, subject to adjustment and regulation in conformity with conditions in effect in similar operations conducted by the company's competitors. For the purpose of making such change in wages or working conditions, a joint meeting of employees' representatives in the divisions affected and proper officers of the company shall be called within 30 days after the change in wages or in working conditions in competitive operations is effective, to discuss and determine an equitable method for fixing the new schedule of wages or working conditions in the departments concerned."

THE Company has Provided Club Houses at All of Its Operations and Where the Number of Employees Is Sufficient to Warrant the Employment of a Secretary, the Y. M. C. A. Is Put in Charge. The Steel Works Club at Pueblo was constructed at a cost of $500,000, which was borne jointly by John D. Rockefeller, John D. Rockefeller, Jr., and the Colorado Fuel & Iron Co.

THE Educational Program of the Steel Works Club at Pueblo Is Comprehensive, Embracing Both Mental and Physical Training. Regular swimming classes are held in the club pool shown in the illustration

Right to Hire and Discharge

While the employees are given a voice in determining wages and working conditions, the company definitely reserves to itself the management and the direction of the working forces, including the right to hire and discharge. This stipulation, nevertheless, is subject to certain qualifications intended to safeguard the position of employees. It is stated that "the fairness of any action under this paragraph shall be a proper subject for review, according to the general provisions expressed herein." In laying off men because of lack of work, length of service and other things considered, men with dependents are given preference. In making promotions, the primary consideration is given to length of service and ability to do the work required. Summary dismissal of an employee is warranted for

commission of any one of a list of offenses which are posted in each division and subdivision of the company. For offenses other than those posted, employees may not be discharged without first being notified in writing that a repetition of the offense will be cause for dismissal.

The provision that the acts of the management in such matters as laying off and promoting employees shall be subject for review naturally causes many questions to come up for adjustment. This may prove annoying on occasion, and at any rate, consumes considerable time that the management might regard better spent in some other endeavor, but the directing heads of the company believe it is worth while, if only to prove to the employees that no stone is left unturned to insure everybody the fairest of treatment.

Problem Resulting from the War

As an example of typical problems which come before the works council, a complicated situation grew out of the war. It had been announced by the company that no employee should suffer by joining our armed forces. When the veterans returned, it was necessary to find places for them and at the same time not entirely disrupt the various departmental and divisional organizations which had been built up in the meantime. This was successfully worked out.

That the industrial relations program is a living organism and not a mere "paper" plan is indicated by the records of questions adjusted in 1922 and 1923. Out of 774 questions considered in 1923, 630, or 82 per cent, were adjusted in favor of the employees directly concerned. In 1922, 515 out of 660 questions, or 78 per cent, were decided favorably to the employees.

Reviewing the statistics for 1923 in greater detail, it is found that out of 196 questions considered by the employees or their representatives with the local management, 144 were decided in the affirmative and 52 in the negative, with two pending at the close of the year. Of 147 referred to the president's industrial representative, 117 were decided in the affirmative and 30 in the negative, with one pending. Of 431 considered by the joint committees, 369 were decided affirmatively and 62 negatively, with seven pending. The subjects at issue were classified under wages, working conditions, employment, living conditions, medical department, stores, education, recreation and miscellaneous. Wages, working conditions and living conditions furnished 582 questions, or 92 per cent of the total number considered during the year. Of the questions in these three classifications, 475 were decided in favor of the employees, 102 against them, while 5 remained pending at the end of the year.

All Questions Settled Peacefully

In a small pamphlet touching on the salient features of the joint representation plan, it is stated that through service on committees, or otherwise, employees' representatives may help determine wage scales, working and living conditions, recreational, educational and other activities which make up the life of their respective committees. The records for 1922 and 1923 clearly indicate that employees are taking full advantage of their privileges. It is also worthy of comment that all questions which came up were settled peacefully. There can be little doubt that the plan has not only had the negative advantage of preventing discord but it has likewise had the positive effect of distinctly improving the morale of the employees.

The operation of a successful works council plan is by no means simple. This can be readily appreciated when it is pointed out that in 1923 the Colorado company had an average of 10,932 employees, comprising 54 nationalities, living in 20 separate communities. Much has been said about the handicaps imposed upon our municipal, State and Federal governments through the influx of large numbers of heterogeneous aliens with ideals and traditions foreign to those of our country. In fact, one of the principal arguments for restricted immigration is the necessity for more thorough assimilation of the foreign-born already within our borders. The industrial relations plan of the Colorado company has been confronted with even severer tests than any of our governmental bodies. The great majority of employees necessarily are common laborers, or at least not very far advanced in the skilled class. Upon their good judgment and sense of fairness the success of the program primarily depends. While an elected representative must be an American citizen who has been in the company's employ for at least a year, every employee has the right to vote after three months of service.

Cost and the Results

What does the industrial relations plan cost, and do the results justify the cost?

This is a natural question and is answered as follows:

According to Government reports there were 3254 strikes and lockouts in the United States in 1920, involving 4,000,000 workmen. The loss in money was over two billion dollars, of which more than one and one-quarter billions came out of the pockets of labor. The working time lost was equivalent to the labor of 1000 men for 161 years. This alone is convincing evidence that strike prevention is one of our most important economic needs. Consideration must also be given to the indirect, but nevertheless very tangible, benefits of industrial concord which find expression in mutual confidence and good will between employee and employer. The avoidance of industrial disputes, therefore, has the two-fold effect of preventing losses in time and money to both men and management and of insuring gains accruing from labor's active and enthusiastic interest in the success of the industry with which it is identified.

The expense of the Colorado industrial relations program was $125,000 in 1923. In 1920 it reached a maximum of $216,975.79, but this represented only a little more than one-half of 1 per cent of the gross business of the company, and less than 1 per cent of its entire payroll.

It has been charged by some critics that the Colorado plan is the altruistic hobby of a large stockholder and that it is adhered to regardless of, and often, to the detriment of profits. In answer to this it may be said that the cost of the plan is too small materially to affect profits and, furthermore, that the Colorado company has 3500 stockholders, no one of whom has a controlling interest.

Why Company Bears Expense

Why does the company bear all the expense of the industrial relations plan, if the proposition is really a 50-50 one?

This question has been answered by the company as follows:

"All expenses are borne by the company since the promotion of harmony and good will between the management and employees and the furtherance of the well-being of employees and their families in the communities in which they reside are essential to the successful operation of the company's industries in an enlightened and profitable manner."

The Colorado program for the promotion of harmony and efficiency among employees is comprehensive, but a feature commanding particular attention is the solicitation of practical suggestions from employees. Originally suggestion boxes were distributed around the plants, but these were not productive. Under the present scheme, all suggestions are sent direct to the president's industrial representative, who sends a letter of acknowledgment to each sponsor. In case of adoption, prizes are awarded, ranging from $5 to $100, according to the merit of the suggestion. Whenever an employee develops anything which can be patented, the company bears the cost of the patent, only asking the privilege of the use of the device in company operations. If a suggestion is patentable but not applicable to the company's work, the management frequently lends money to the inventor to cover the cost of patenting. If a suggestion is rejected, the president's industrial representative writes the sponsor, setting forth reasons why it cannot be adopted. In some instances, the suggestion may be impracticable; in others, it may have been adopted previously. If a suggestion is lack-

ing in some important essential but still seems promising, the president's industrial representative consults with the employee with a view to solving the difficulty.

Doubters Were Convinced

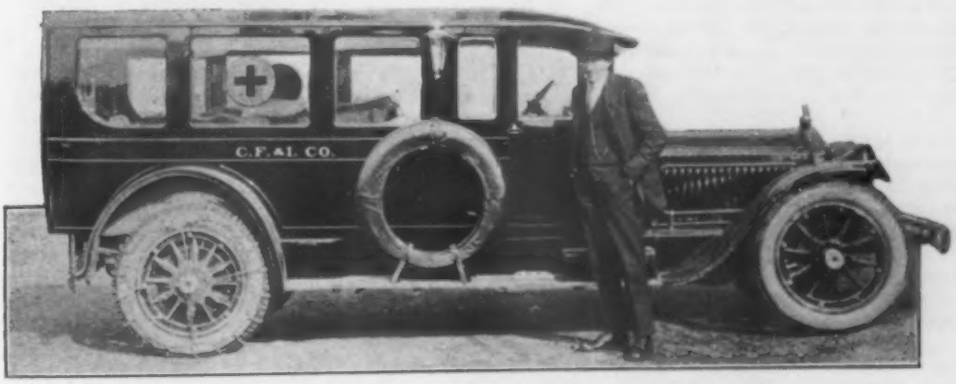
At first there was considerable skepticism regarding the suggestion plan, but gradually confidence has been built up until now it is highly productive. Doubters were convinced by performance. In one of the illustrations is a copy of a letter which accompanied a $100 check sent to an employee for a suggestion. In this case practical improvements to a furnace for heating angle bars were suggested. In the company's Industrial Bulletin of May 15, 1924, the suggestions receiving financial awards since the Dec. 15, 1923, bulletin were listed as follows:

Fuel Department

Isaac Sandoval, Berwind, Colo. Various suggestions for conducting special sales at Colorado Supply Co. stores.

Iron Department

E. Spees, Minnequa Steel Works. Suggested improvement in building of dynamic controllers.



A FLEET of Ambulances Connects the Company's Outlying Properties with its Hospital at Pueblo. The ambulance service, incidently, was suggested by Charles Peete, works council representative at the company's Robinson No. 1 mine. Mr. Peete is shown standing next to the car in the photograph

E. J. Markert, blast furnaces, Minnequa Works. Improvement at sintering plant.

Other typical suggestions include an electric flue cleaner, which has proved an important time saver, and a chute for handling brick in the checker chambers of the open hearth furnaces. Formerly corners would break off the brick, or the fingers of men at the bottom of the chute would be smashed. The chute designed by the workman has a lever half way down the descent to lessen the speed of the brick. Likewise the bottom of the chute has been curved so that brick is swung into a horizontal plane upon delivery.

Promoting Recreation and Education

The company's efforts to promote recreation and education among its employees have been as broad as in the field of industrial relations. Club houses have been provided at all of the company operations and where the number of employees is large enough to warrant the employment of a paid secretary, the Y. M. C. A. is put in charge. The Steel Works Club at the Minnequa plant is a four-story and basement brick building, which was opened in March, 1920. Its construction cost was $500,000, which was divided among John D. Rockefeller, John D. Rockefeller, Jr., and the company. The membership roll includes 1000 men, whose dependents are also accorded the privileges of the club, 250 boys and 250 women and girls. Dues for an adult employee of the company are $7.50 a year; for apprentices between 16 and 19 years of age the charge of $3.75 a year. Wives and daughters of non-members have been given a special rate of $5 a year, while minor children of non-members pay dues of $2 annually.

Features of the club building are a large lounge, a reading room supplied with 65 periodicals, a library with an average circulation of 750 volumes per month, rooms for dances and banquets, bowling alleys, billiard and pool tables, a swimming pool, a gymnasium, a cafeteria and an auditorium with a seating capacity of 1221. Through the management of the Y. M. C. A., both the recreational and physical activities of members are organized. There are regular gymnasium, swimming and dancing classes. Men and women members have separate locker and wash rooms and are given separate physical instruction. Games, meets and tournaments in the various sports are arranged to develop the wholesome rivalry incident to a contest. Amateur theatrical plays and musical concerts are encouraged and for those purposes the auditorium is utilized. Throughout the fall and winter, concerts are given every Sunday afternoon and invariably the attendance exceeds the seating capacity. The hall is equipped with a pipe organ and has forced air circulation.

Many Students Enrolled

The educational activities of the club are also important. Over 800 students, including minors, are enrolled in vocational, cultural, Americanization and home economics classes. Among the vocational subjects are mathematics, blue print sketching, mechanical drawing, chemistry and mechanics. Cultural subjects include music, dramatics, art, languages, pageants. Under the heading home economics may be mentioned cooking, sewing, art needlework, the making over of garments, home sanitation, nutrition, canning. In addition to these classes, educational efforts find expression in discussion clubs, cultural clubs for girls, story-telling hours for children, illustrated lectures and motion pictures. Seasonal parties, picnics, hikes, summer camps, and lawn concerts are among the numerous other organized activities fostered by the Steel Works Club. The important place the club has taken as a social center is indicated by the fact that 47 different organizations not directly connected with the Y. M. C. A. make use of the club building and its facilities.

The club structure also contains a dormitory embracing 126 rooms to accommodate 155 residents. Room rent is $12 a month.

Medical and Surgical Treatment

For the medical and surgical treatment of employees a large hospital has been provided at Pueblo and dispensaries at the Sunrise, Wyo., iron mine and at the Primero, Colo., coal mine, the two properties furthest removed from Pueblo. The Minnequa hospital at Pueblo was built in 1902 at a cost of $400,000. The buildings are located on a beautifully landscaped eight-acre tract. The main structure embraces an operating room and 226 beds. In addition, there is a separate contagious ward, a laundry, a power plant, a nurses' home and a doctors' home. The expenses of the medical department are paid from a fund provided in part by the company and by dues which employees pay and by fees paid by hospital patients other than employees. The company does not charge any rent or interest on the medical department properties and draws no earnings or profits therefrom.

Each employee located where the medical department maintains a local physician is charged $1.50 a month for medical dues. This amount is deducted

from earnings each month and entitles him to medical and surgical treatment.

For the rapid transportation of patients to the hospital from the company's outlying properties, ambulances are provided. These have special bodies constructed on Packard and Cadillac chassis and are provided with regular drivers who keep the cars in good condition, so that they are ready for immediate service on call. Whenever necessary, a physician or some other qualified person accompanies the patient on the ambulance. The ambulance service is another concrete example of the benefits derived from the company's employee suggestion plan. The idea was first proposed by Charles Peete, an employee at Robinson No. 1 Mine, and it has proved entirely practicable notwithstanding the distances which must be traversed. The run from Canon City to Pueblo is 50 miles and from Walsenburg, 54 miles. The longest run, 120 miles, is from the Primero mine.

Renting to Employees

At its outlying properties the company rents to employees over 2000 dwelling houses, representing an investment of over $2,000,000. Owing to the uncertain life of a mine, workmen cannot be expected to purchase homes. The company also encourages educational and religious activities among its employees, but studiously avoids interfering with them. Even where it is the only tax payer, the company leaves entirely to the community the responsibility of hiring and discharging teachers and building and equipping public schools.

Through a subsidiary, the Colorado Supply Co., the company conducts a system of stores. This organization owes its existence to the fact that the management recognized that it owed a responsibility to employees whom it took to isolated communities. Food, clothing and other supplies are bought wholesale and sold at moderate prices to employees. Under the articles of agreement governing the company's industrial relations plan, it is specifically provided that employees shall not be obliged to trade at these stores, but shall be at liberty to purchase goods wherever they prefer. It is significant that out of all the questions which came up for consideration in the works council last year, there was not a single charge against the management of the stores.

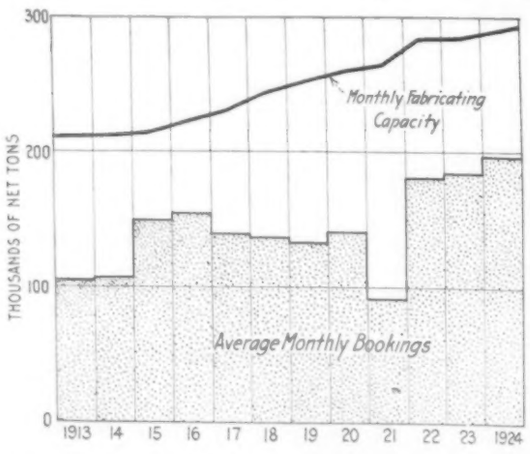
Pension Plan

A pension plan for employees was adopted by the board of directors of the company in 1917. The regular service retirement payments are 30 per cent of the average pay per month of service during the 10 years next preceding retirement, with a minimum of $20 a month. Employees eligible include all men of 65 and women of 55 after 20 years of service, men of 60 and women of 50 after 30 years of service. There are also special provisions for employees who have become permanently incapacitated in the service, and for employees of advancing years after 20 years of service. This latter classification includes employees who have not yet reached the ages making them eligible for pensions, but who in the judgment of the board should be retired on account of senility.

The brief survey which has been given of the various activities which comprise the industrial relations program of the Colorado company is necessarily incomplete in its details. It should suffice, however, to indicate the comprehensive character of the organized efforts to promote the economic, physical and educational interests of employees with a minimum of paternalism. Through its works council plan, its suggestion system, its athletic and social activities, the company has aimed to stimulate individual initiative and self-dependence in the greatest possible measure. By giving employees real responsibility in industrial relations, it has attempted, and apparently with much success, to create a real esprit de corps throughout the entire organization. Through its medical department, its safety committees, and its pension plan, it has reduced so far as possible the hazards and hardships incident to the uncertainties of life.

Structural Steel Sales Since 1913

WASHINGTON, Jan. 22.—Capacity of fabricators of structural steel during 1924 is estimated by the Bureau of the Census at 290,000 tons per month, against 285,000 tons in 1923, based on actual reports by 218 firms with a capacity of 261,690 tons in 1924, and estimated capacities for other firms. The table shows the monthly capacity for each year since 1913 of 218 firms reporting these items, including 12 firms now out of business, the total capacity for fabricating structural steel each year as estimated from these returns, the percentage of bookings to capacity each year (the figures up to 1922 being obtained from trade sources) and the total bookings computed from this percentage.



Revised Figures of the Fabricating Capacity of the Country Have Been Compiled by the Bureau of the Census and Against the Curve of Capacity Are Shown the Modified Totals of Average Monthly Bookings

The capacity of structural-steel shops is quite elastic in that this same capacity, when not busy on structural work, may be used for plate work, shipbuilding, etc., and similarly capacity ordinarily devoted to these other lines may be used at times for structural work. The capacity taken for this survey represents the amount of structural work that could actually be turned out, running single turn on the character and class of structural work usually secured.

Fabrication of Structural Steel, 1913 to 1924
(In Net Tons)

	Monthly Capacity		Annual Bookings	
Year	Reported	Estimated Total	Per Cent of Capacity	Computed Tonnage
1913.....	192,850	210,000	50	1,260,000
1914.....	193,700	211,000	50	1,266,000
1915.....	196,010	214,000	70	1,797,600
1916.....	202,745	222,000	69	1,838,160
1917.....	210,555	231,000	60	1,663,200
1918.....	221,780	244,000	56	1,639,680
1919.....	228,920	252,000	53	1,602,720
1920.....	236,175	260,000	54	1,684,800
1921.....	239,975	265,000	35	1,113,000
1922.....	257,775	284,000	64	2,181,120
1923.....	258,440	285,000	65	2,223,000
1924.....	261,690	290,000	68	2,366,400

All Gary Stacks in Operation

The No. 5 blast furnace of the Indiana Steel Co., Gary, Ind., was blown in Jan. 22, after having been largely rebuilt, following damage from an explosion last summer. The furnace is equipped with the first Brosius mud gun in the Chicago district. The mud gun is manufactured by Edgar E. Brosius, Pittsburgh. The going in of the No. 5 furnace places all 12 of the Gary stacks in operation.

The concrete work in connection with the addition to the drop forge plant of the Endicott Forging & Mfg. Co., Ind., Endicott, N. Y., has been let to George T. Coles, Union, N. Y.; the carpenter work to E. L. Stanton, contractor, Endicott, N. Y., and the steel work to the Binghamton Bridge Co., Binghamton, N. Y.

World's Pig Iron and Steel Output

Six Post-War Years Compared with 1913—Steel Production Alone Exceeded in 1924 the Pre-War Year—Exports Gained Last Year

BY EDWIN F. CONE

JUDGED by 1913 standards, the world's iron and steel industry both exceeded and fell short of its pre-war performance in 1924. Using the six leading producing nations as representing the world's total output, the combined steel production exceeds that of the pre-war year. In both pig iron output and in exports, however, the 1913 record was not reached. Again, the American steel industry is the controlling factor in production, in that the falling off in this country in 1924 was not made up by gains in other countries.

The prophecy at the close of the war of a great peace-time demand for iron and steel, in compensation for four years of postponement of all but war needs, has failed for the sixth time. In exports slow progress was made last year by the producing companies. Though the total was larger than for any year since the war, the gain was only about 4 per cent over 1923. But the world's pig iron production is still notably less than in 1913. Even in steel 1924 was only about 1,000,000 tons in excess of the pre-war year.

A notable development of 1924 was the fact that France passed Great Britain as a pig iron producer.

Output and Exports of the Six Leading Countries

THE great bulk of the world's pig iron and steel is made by six countries: United States, Great Britain, Germany, France, Belgium and Luxemburg. A review of the pig iron, steel and exports of these six countries is presented in the following, the statistics being largely those published by the National Federation of Iron and Steel Manufacturers of Great Britain. Under "steel" is included steel castings. Scrap exports are deducted, however, from all totals.

France

The notable feature of the 1924 record of the six countries here reviewed was the expansion in the French industry. For the first time the British production was passed by the French. In both pig iron and steel the output exceeded all previous records of war or peace.

French Iron and Steel Output and Exports During Peace Years in Gross Tons

	Pig Iron	Steel	Exports
1912.....	4,860,000	4,356,000	498,000
1913.....	5,124,000	4,620,000	578,400
1919.....	2,376,000	2,148,000	232,800
1920.....	3,380,400	3,002,400	895,200
1921.....	3,363,600	3,054,000	1,462,400
1922.....	5,146,800	4,464,000	1,936,800
1923.....	5,347,200	4,899,600	2,182,800
1924*.....	7,505,600	6,767,300	2,703,600

*Partly estimated.

With a production of 7,505,600 tons of pig iron in France last year, the increase over 1913 was about 47 per cent. About 38 per cent of the total was made in Lorraine.

A similar expansion was recorded in steel. At 6,767,300 tons in 1924 the previous year's record was exceeded about 38 per cent. The increase over the pre-war record was 46.5 per cent. Here, too, Lorraine was a large factor, contributing about 34 per cent of the steel ingots last year.

At 2,703,600 tons, French exports last year were over 23.5 per cent in excess of the 1923 total, and not far from five times that of 1913, when France was hardly regarded as a factor in the world's steel trade. In many respects this is a remarkable achievement.

Belgium

While the increase in Belgian pig iron and steel last year was moderate compared with that of France, it was substantial, exceeding for the first time the 1913 volume. The pig iron increase was over 27 per cent—2,751,400 tons compared with 2,149,200 tons. In steel the 1924 increase over 1923 was about 20.5 per cent.

Belgian Iron and Steel Output and Exports During Peace Years in Gross Tons

	Pig Iron	Steel	Exports
1912.....	2,304,000	2,472,000	1,494,000
1913.....	2,445,600	2,427,600	1,545,600
1919.....	247,200	328,800	174,000
1920.....	1,112,400	1,215,600	891,600
1921.....	861,600	780,000	910,800
1922.....	1,578,000	1,538,400	2,110,800
1923.....	2,149,200	2,234,400	2,494,800
1924.....	2,751,400*	2,508,800*	3,318,900†

*December estimated. †November and December estimated.

The most remarkable development was in foreign trade. Belgian exports in 1924 at 3,318,900 tons show an expansion of 25 per cent over 1923 and 100 per cent over 1913. It must be remembered that in recent years the figures for Luxemburg are included because of an economic union concluded in 1922. A feature of these exports has been the large volume of semi-finished steel sent to England and other countries.

United States

Pig iron output at 31,300,000 gross tons was about 22.5 per cent under that of 1923—the country's largest

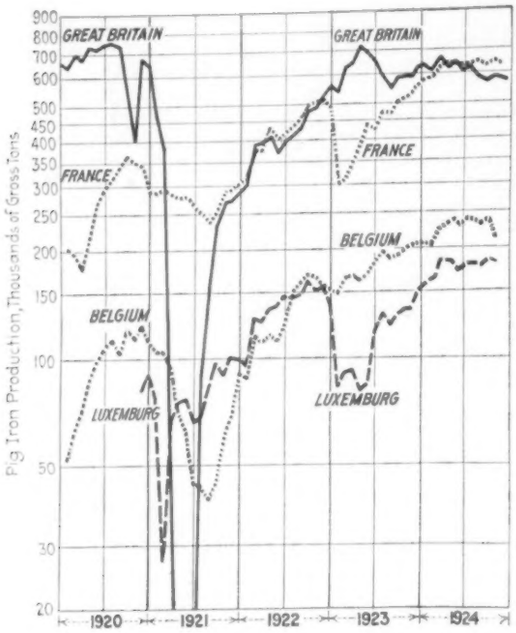
SIX years after the war the world's steel consumption, based on exports, is still less than in 1913.

The world's six leading producing nations are still making less pig iron than before the war.

Only in steel is the world's production greater than in 1913.

The American industry in 1924 made 53 per cent of the world's pig iron and 57 per cent of the steel, but exported only 14 per cent of the total for the six leading nations.

France, for the first time in many years, made more pig iron in 1924 than Great Britain.



Pig Iron Output of Four European Countries in the Last Five Years. The large expansion in France, Belgium and Luxemburg in 1924 is the feature, France passing Great Britain

production—and only slightly in excess of the best pre-war figure of 30,966,000 tons in 1913. The 1924 steel production of about 37,700,000, including castings, was 16 per cent under that of 1923, but about 17 per cent larger than the pre-war production of 31,300,000 tons in 1913.

In exports 1924 was still less impressive. At an estimated total of 1,800,000 tons, scrap not included, the year's showing is the poorest since the war. It is only about 60 per cent of the quantity exported in 1913 and registers a decline of 6.5 per cent from the 1923 exports. The falling off since the war has been gradual, until last year the total was only about 39 per cent

American Iron and Steel Output and Exports During Peace Years in Gross Tons

	Pig Iron	Steel	Exports
1912.....	29,727,000	31,251,000	2,418,000
1913.....	30,966,000	31,300,000	2,892,000
1919.....	31,015,000	34,671,000	4,399,000
1920.....	36,926,000	42,133,000	4,706,400
1921.....	16,688,000	19,784,000	2,172,000
1922.....	27,220,000	35,603,000	1,986,300
1923.....	40,361,000	44,943,700	1,926,900
1924*.....	31,300,000	37,670,000	1,800,000

*Partly estimated.

of the record for all time, 4,706,400 tons, in 1920. European competition and the lack of demand from all consuming countries were the chief causes.

Great Britain

The British steel industry last year did not equal the record made in 1923 in production of pig iron and steel. The decrease in pig iron was 119,900 tons from 1923 or 1.6 per cent; that in steel was 273,200 tons or 3.2 per cent. In both, 1924 exceeded only the poor post-

British Iron and Steel Output and Exports During Peace Years in Gross Tons

	Pig Iron	Steel	Exports
1912.....	8,748,000	6,792,000	4,807,200
1913.....	10,260,000	7,688,000	4,969,200
1919.....	7,404,000	7,896,000	2,223,200
1920.....	8,034,000	9,067,200	3,250,800
1921.....	2,611,200	3,625,200	1,706,400
1922.....	4,899,600	5,880,600	3,400,800
1923.....	7,438,800	8,488,800	4,320,000
1924.....	7,318,900	8,215,600	3,860,000*

*December estimated.

war records in 1921 and 1922. The falling off in pig iron which has marked all the years since the war was further emphasized. In steel, however, the pre-war record was again exceeded by a large margin.

The feature of last year's record was the sharp decline in the British foreign trade. At 3,860,000 tons the falling off from 1923 was 10.5 per cent. This was nearly 78 per cent of the 1913 total. In no year since the war has Great Britain attained the volume of its 1913 trade, the nearest approach having been made in 1923 at 88.5 per cent of that total. Competition from the continent, particularly France and Belgium, was the main reason for the decline last year.

Luxemburg

The recovery of Luxemburg's steel industry from the effects of the war is an interesting development. As shown by the table, great gains appear in pig

Luxemburg's Iron and Steel Output During Peace Years in Gross Tons

	Pig Iron	Steel
1913.....	2,498,000	1,308,000
1919.....	608,000	364,000
1920.....	681,600	560,400
1921.....	955,200	742,800
1922.....	1,658,400	1,371,600
1923.....	1,384,800	1,179,600
1924*.....	2,020,600	1,829,300

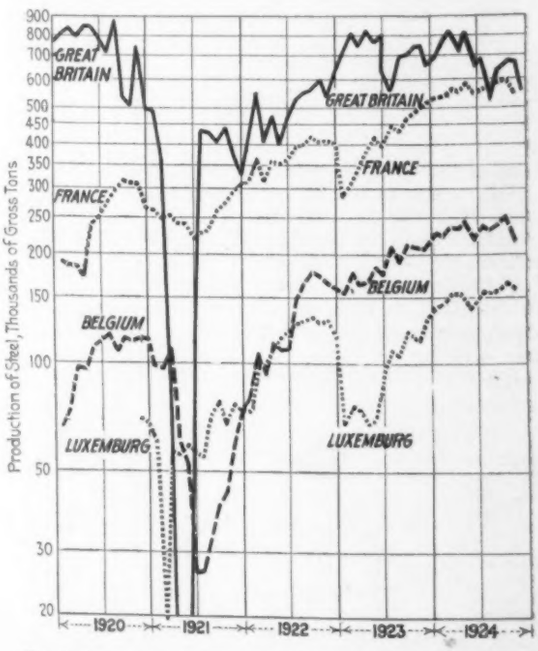
*Partly estimated.

iron and steel production. The 2,020,600 tons of pig iron in 1924 is an increase of nearly 50 per cent from 1923 and 25 per cent from 1922. It was not, however, equal to the volume of 1913. In steel the record is decidedly different. While the 1924 total was larger than that of 1923, it exceeded that of 1913. The contrast with the low records in 1920 and 1921 is marked in each case.

No record of Luxemburg's exports is available since they are combined under those of Belgium because of an economic union established in 1922.

The German Industry

Data as to Germany's pig iron and steel output are meager and unsatisfactory. Those given for 1924 are estimates but are by no means official. The same is true regarding the 1923 figures. In fact, no official data have been published since some time during the war. The increase in pig iron last year brought the



Steel Output, Including Castings, of Four European Countries from 1920 to 1924. The expansion of the three continental countries last year stands out

total beyond anything since the war, while in steel the rate in 1921 and 1922 was nearly equaled.

There is the claim that Germany's capacity is not much in excess of her normal consumption, so that her competition in world trade cannot be the factor often predicted. What has been written on this subject is largely speculation.

German Iron and Steel Output and Exports During Peace Years in Gross Tons

	Pig Iron	Steel	Exports
1912.....	15,350,400*	16,075,200*	5,812,800
1913.....	16,476,000*	17,340,000*	6,202,800
1919.....	5,654,000	6,732,000	No Data
1920.....	5,568,000	6,624,000	1,723,200
1921.....	6,096,000	8,700,000	2,445,600†
1922.....	6,200,000	8,750,000	1,827,600
1923.....	4,750,000	5,500,000	1,366,400
1924.....	7,900,000	8,400,000	1,147,600

*Excludes Luxemburg. Last six years partly estimated. 1923 and 1924 data estimated. †Based on 8 months.

In exports Germany made a poor record last year. The statistics are admittedly incomplete because of the Ruhr occupation. There was a sharp decline even from the small total of 1923 and nearly a 55 per cent falling off from 1921.

World Output and Exports

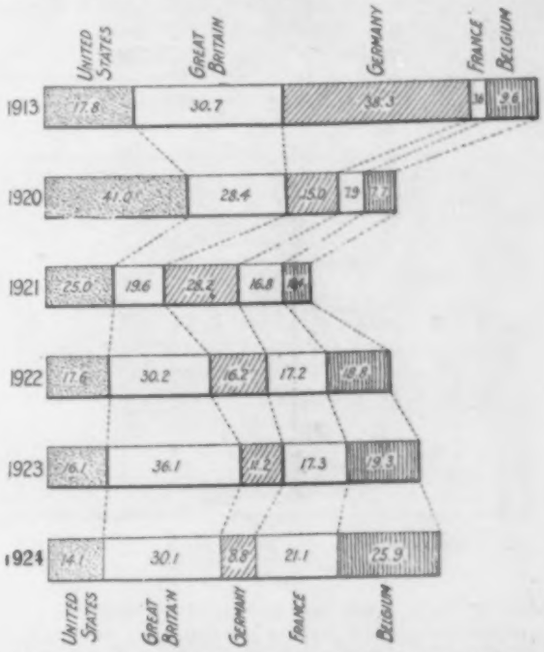
VALUABLE comparisons are possible from a combination of the data of the six countries for pig iron and steel output and for exports for each normal or peace-time year since 1913. The outstanding feature of the 1924 record is that in exports alone was any gain made over 1923. Because of the falling off in this country, pig iron and steel outputs registered a decline despite the sharp increases in France, Germany and other continental countries. Despite small American exports, the 1924 total was the largest since the war.

In pig iron European continental countries all made substantial gains over 1923. For the first time France made more pig iron than Great Britain. The British and American outputs both fell off. Against 65.7 per cent of the world's total pig iron in 1923, the American share fell to 53.2 per cent.

In steel as in pig iron, there were substantial gains by European continental countries and losses by the United States and Great Britain. Of the total the American last year was 57.3 per cent as against 65.8 per cent in 1923. In 1913 the proportion was 48.4 per cent.

In exports the notable development last year was the expansion in the French and Belgian totals. These brought the world's total to the largest since the war. Belgium advanced closer to Great Britain, the leading exporting nation, with France third by a comfortable margin. Again the United States is fourth.

The so-called "world hunger" for steel has evidently been much overrated. In 1923 the total exports from producing countries were about three-quarters of the 1913 movement. Last year the proportion had advanced to about 79 per cent. In 1919 and 1920 the American industry held a commanding position in this business, but in recent years the change has been marked. Producing 53 per cent of the iron and 57 per cent of the steel of the world last year, the United States exported only 14 per cent of the total, standing fourth, with Great Britain first, Belgium second, France third and Germany fifth.



Relative Exports of Iron and Steel From Six Leading Countries, Luxemburg Being Included in Belgium. The poor showing of the United States and the decline in British exports are emphasized

All Producing Nations

Data covering the output of pig iron and steel of the smaller producing countries are exceedingly difficult to obtain. Those for Canada show a pig iron production last year of 593,000 tons and 650,700 tons of steel. Estimating on the basis of data for 1922, the pig iron output of Sweden, Austria, Czecho-Slovakia, Spain, Italy, India, China, Japan, Russia, Holland and other countries, was about 2,500,000 tons last year. In the same manner the steel production of those countries was approximately 3,500,000 tons. These additions bring the pig iron production of all countries to about 61,300,000 tons and the steel to about 69,190,000 tons.

World Production and Exports of Steel and Iron as Represented by the Six Leading Nations, in Gross Tons

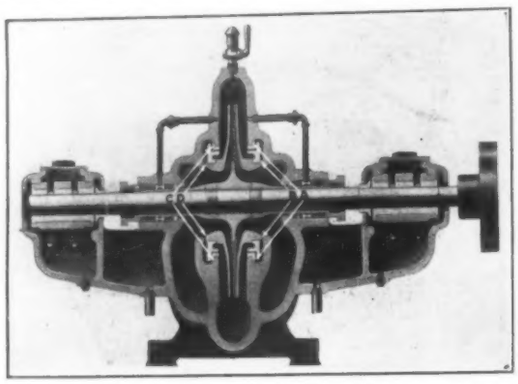
Pig Iron:	1913	1919	1920	1921	1922	1923	1924*
United States	30,966,000	31,015,000	36,926,200	16,688,000	27,220,000	40,361,000	31,200,000
Great Britain	10,260,000	7,404,000	8,034,000	2,611,200	4,899,600	7,438,800	7,318,900
Germany	16,476,000	5,654,000	5,568,000	6,096,000	6,200,000	4,750,000	7,900,000
France	5,124,000	2,376,000	3,350,400	3,363,600	5,146,800	5,347,000	7,505,600
Belgium	2,445,000	247,200	1,112,400	861,600	1,578,000	2,149,200	2,751,400
Luxemburg	2,498,000	608,000	681,600	955,200	1,658,400	1,384,800	2,020,600
Totals	67,769,000	47,284,200	55,702,600	30,575,600	46,702,800	61,430,800	58,796,500
Steel:	1913	1919	1920	1921	1922	1923	1924*
United States	31,300,000	34,671,000	42,132,000	19,784,000	35,603,000	44,943,700	37,670,000
Great Britain	7,688,000	7,896,000	9,067,200	3,625,200	5,880,600	8,488,800	8,215,600
Germany	17,340,000	6,732,000	6,624,000	8,700,000	8,750,000	5,500,000	8,400,000
France	4,620,000	2,148,000	3,002,400	3,054,000	4,464,000	4,899,600	6,767,300
Belgium	2,427,600	328,800	1,215,600	730,000	1,538,400	2,234,400	2,808,800
Luxemburg	1,308,000	364,000	560,400	742,800	1,371,600	1,179,600	1,829,300
Totals	64,683,600	52,139,800	62,602,600	36,236,000	56,607,600	67,246,100	65,691,100
Exports:	1913	1919	1920	1921	1922	1923	1924*
United States	2,892,000	4,399,000	4,706,400	2,172,000	1,986,300	1,926,900	1,300,000
Great Britain	4,969,200	2,223,200	3,250,800	1,706,400	3,400,800	4,320,000	3,360,000
Germany	6,202,800	No Data	1,723,200	2,445,600	1,827,600	1,366,400	1,147,600
France	578,400	232,800	895,200	1,462,400	1,936,800	2,182,800	2,703,600
Belgium	1,545,600	174,000	891,600	910,800	2,110,800	2,494,800	3,318,900
Totals	16,188,000	.....	11,467,200	8,697,200	11,262,300	12,290,900	12,830,100

*Estimated in part.

Double Suction Centrifugal Pump

The incorporation of a device which is claimed to neutralize end thrust automatically is a new feature of the double-suction single stage centrifugal pump illustrated, which is a product of the Earle Gear & Machine Co., 4707 Stenton Avenue, Philadelphia.

In developing the device, the arrangement of which may be noted at *A B* and *C D*, it was recognized that although theoretically a double-suction pump has no end thrust, end thrust or unbalanced pressure on the



A Device Incorporated to Neutralize End Thrust Automatically Is a Feature

sides of the impeller may be caused by inaccurate castings for the pump casing or the impeller. In operation, if the thrust is toward the right, the radial seat at *B* will tend to close, while the radial seat at *A* is opened, building up pressure on the right side of the impeller. The radial seat *C* in the meantime has closed and the radial seat *D* has opened, effecting a suction or reduced pressure on the area of the side of the impeller from *C* to the shaft. As the area on the right side of the impeller, subject to high pressure, is greater than the area of the left side of the impeller from *C* to the shaft, the pump rotor will tend to move slightly to the left until it reaches a point at which the total pressure will be the same on both sides of the impeller and the true hydraulic balance is obtained. The opposite cycle of events occurs if the original thrust is to the left.

Because of the hydraulic balance thrust bearings or collars are not required. Small fixed collars are placed on the shaft, however, being set at a distance from the face of the bearing bushing. These collars become operative after the limit of allowable wear has occurred within the case, at which time the engagement of the collars and bearings becomes a visible indication of the need of replacement of wearing parts within the pump.

In the pump illustrated, which is designated as type B, split babbitted bearing shells with two oil rings are provided. Bronze sleeves are intended to protect the forged steel shaft from the action of the liquid handled, and deep stuffing boxes with a brass bottom, ring and brass water-seat rings are incorporated. Provision is made to keep oil in and water out of the bearings. Air pockets in the pump casing are minimized and provision is made to prevent the water from rotating with the impeller in the suction passages.

Receiver Grant Takes Charge of Struthers Furnace Co.

Hugh W. Grant, president of the City Trust & Savings Bank, Youngstown, appointed receiver for the Struthers Furnace Co., has ordered the company's New York offices closed, and has established headquarters at 1301-1304 Wick Building, Youngstown. Following an audit of the company's books, the records will be moved to Youngstown. Mr. Grant expresses hope that a settlement of the company's affairs may be made without the necessity of bankruptcy proceedings. He attributes its financial difficulties, culminating in receivership, largely to lack of adequate working capital.

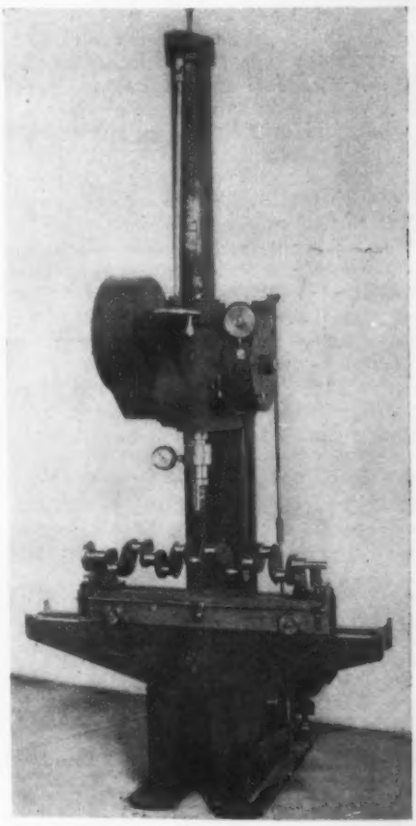
Mr. Grant states that on Oct. 1 last the company's total liabilities, exclusive of capital invested by stockholders, aggregated $3,572,710.14, including first mortgage bonds of $1,500,000, held by the Guardian Savings & Trust Co., Cleveland. Value of the pig iron owned by the company, piled in its yards at Struthers, Mahoning County, is declared to be $300,000 above the total of bank loans. Unsecured creditors have claims amounting to $164,533.96.

Straightening Press with Pressure Regulator

A 12-ton press, designated as the Superflex No. 24 and equipped for straightening crankshafts, as shown in the illustration, has been added to the line of the Fox Machine Co., Jackson, Mich.

The work is supported on a fixture which may be moved longitudinally under the ram of the press. The wheels on which the fixture rolls are mounted on yielding supports, as well as the bearings which support the crankshaft when revolved for testing. The anvils, which are not shown in the accompanying illustration of the machine, are inserted at different points under the work to take the pressure of the ram.

In finish-straightening of work of the type illustrated, it is important to see that the pressure applied does not exceed the amount required to correct the deflection. Two features are incorporated in the machine to prevent this. One is the pressure gage on the nose of the ram. The other is a pressure regulator made up of an adjusting screw passing through the front of the brake drum housing and making contact with a lever on the opposite side, which is operated by the foot treadle. Adjustment of the pressure regulating screw determines the amount of pressure that can



Crankshaft Straightening Press. The work and fixture may be moved longitudinally

be exerted on the brake band and this, in turn, regulates the pressure of the ram on the work. If the straightening operation requires a pressure of only 2 tons, the handwheel on the brake drum housing is turned until the dial indicates 2 tons on the pointer, whereupon depressing of the treadle will deliver 2 tons pressure at the ram. By revolving the pressure regulating dial in either direction, the pressure can be increased or decreased accordingly.

For motor drive, a 10-hp. 1200-r.p.m. motor is employed. The weight of the press is 2532 lb. net.

SOMEWHAT IMPROVED

Industrial Conditions in Pennsylvania Generally Satisfactory

HARRISBURG, PA., Jan. 26.—Somewhat improved conditions in the iron and steel industry of Pennsylvania are reflected in the semi-monthly report for the period ending Jan. 15 to R. H. Lansburgh, Secretary of Labor and Industry.

The Harrisburg report states that steel mills have more orders on hand than expected, and that conditions are improving.

While prospects for 1925 are not regarded as so bright as were those of 1924, early in that year, the Philadelphia office considers conditions somewhat improved. The Edward G. Budd Manufacturing Co., the city's largest manufacturer of automobile bodies, advises that its present working force is 3600, as against 4500 a year ago. No additions to the force are contemplated before March. An agricultural implement company needs hammer men, drop forge men and hot press men. The Navy Yard needs operators of heavy machine tools, such as planers and lathers.

Reading conditions have improved in most departments. The Reading Iron Co. has added more furnaces to its Oley Street Mill, giving work to about 300 men. The Birdsboro steel plant advises that business is considerably improved. The recent heavy snows have forced cessation of operations in some departments of the Bethlehem Steel Co. and the Reading Steel Casting Co. because of the need of repairs to roofs, one at the latter company's plants having collapsed. Business is reported as being very good in the stove foundries.

The Allentown district is another that has found conditions better. The International Motor Co. has added experienced help, but conditions at the American Steel & Wire Co. and the Bethlehem Steel Co. are somewhat slow. Johnstown finds that the usual quiet period at this time of year is less pronounced than usual. A gradual increase in force, production and shipments is declared prevalent. Officials continue to be optimistic. Conditions in Scranton have been improved by the rehiring of 200 men laid off recently by railroad shops.

Erie is inclined to believe that slightly fewer men are employed now that there were during the latter part of December. Lancaster reports that conditions are somewhat disappointing, for men have been laid off rather than added. Oil City has experienced no change, but expects conditions to improve when the weather "opens up." Williamsport has not experienced the expected increase of activity, although plants are declared operating full time with normal forces, but few replacements are necessary and no additional men are being hired. No first class mechanics are idle, however.

CANADIAN PRODUCTION

No Foundry Iron Made in December—Gain in Ingots and Castings

The production of pig iron in Canada in December was 22,544 gross tons, or slightly less than the November output of 22,994 tons. No foundry iron was produced in December, compared with 19,400 tons reported for November. The loss was offset by the increase in the production of basic and malleable. Basic iron rose from 3594 tons in November to 12,653 tons in December, and malleable iron, of which there was no output reported in November, to 9891 tons in December, says the Dominion Bureau of Statistics. The total production of pig iron during the year 1924 was 593,024 gross tons, a decrease of 33 per cent from the 880,018 tons reported for 1923, but an increase of 55 per cent over the 383,057 tons of 1922.

The production of pig iron for the year 1924 by grades is as follows:

	For Own Use	For Sale
Basic	347,461	6,866
Malleable	12,891	45,427
Foundry	1,512	178,867
Total	361,864	231,160

The production of steel ingots and castings in Canada during December was 26,239 gross tons, or 15 per cent over the 22,744 tons reported for November. The increase was in basic open-hearth steel ingots, this grade advancing by 3537 tons to a total of 25,584 tons for the month under review. The cumulative production of steel ingots and castings for the year 1924 was 650,690 tons, comprising 625,175 tons steel ingots and 25,515 tons direct steel castings.

Prices Last Year

A review of prices during 1924 shows that iron and its products declined steadily from January to November. The index based on 1913 average as 100, was 168.5 in January and 154.8 in November. The range in 1923 was from 158.9 in January to 174.4 in June; in December, 1923, it stood at 168.7. This group declined 14 points in 1924. The recovery in December, 1924, amounted to about 3 points. Inactivity in the construction industry and dullness in business conditions generally which characterized 1924 were distinctly reflected in iron and steel prices. No. 1 foundry pig iron was quoted at Montreal at $30.95 per ton in January and $27.70 in November. In December, however, it rose to $31.20 per ton for No. 1 (2.25 to 2.75 silicon). Basic pig iron at the mill was $26 in January, $21 in November and $23 in December.

Imports and Exports

Imports into Canada for the twelvemonth ending with October, 1924, amounted to $818,671,463, with exports for the same period amounting to $1,089,194,223. Iron and its products to the value of $143,010,407 and non-ferrous metals to the value of $40,853,243 were imported during the 12 months ending with October last. The value of exported iron and its products that year was $60,445,565, while non-ferrous metals to the value of $77,813,451 were exported. In the twelve months under review $17,558,750 worth of iron and steel was imported from the United Kingdom; and $122,243,303 from the United States. Exports to the United Kingdom were valued at $8,603,350 and to the United States, $5,672,028.

Argentine as Consumer of Iron and Steel

Reports of Argentine foreign commerce, published by the Pan American Union, Washington, show the imports of iron, steel and manufactures into the Argentine during the calendar years 1923 and 1922. Nothing is shown as to the sources of the material, but the chief figures as covered in the report are given in our table. The values given are in thousands of gold pesos, each peso being equivalent to about 97c. in American money. The first portion of the table shows items reported by tons, while the second portion of the table shows items reported by number.

	1923 Metric Tons	1923 Value	1922 Metric Tons	1922 Value
Steel beams	44,360	2,151	56,489	2,711
Galvanized (sheets)	93,002	7,842	77,815	6,537
Steel ingots and plates	86,283	3,134	61,005	2,198
Steel sheets	29,490	1,431	32,152	1,548
Steel bars or sheets	4,851	586	6,929	832
Steel rails	84,258	4,077	134,323	6,585
Plain wire	22,094	1,065	17,626	847
Galvanized wire	31,270	1,910	21,262	1,277
Galvanized barbed wire	15,941	1,155	25,982	1,868
Wire cloth	1,638	398	1,219	232
Galvanized pipe	9,924	1,218	4,341	1,361
Other pipe	20,470	1,391	16,982	1,270
Tin plate	36,170	3,499	17,999	1,728
Screws and nuts	8,721	1,183	8,576	1,135
Machinery in general	22,283	4,710	18,600	3,759
Block tin	1,431	1,041	718	517
Lead ingots and sheets	5,996	539	2,776	291
Cartridge shells	451	407	374	328
	Number	Value	Number	Value
Motor trucks	533	525	516	847
Passenger automobiles	30,311	12,676	15,483	6,499
Bath tubs	15,658	656	10,225	429
Sewing machines	64,139	948	62,113	904

Group of Industrial Bronzes

1922

THE greatest power in the world today is Production. Production must be brought about through labor. In the progressive age in which we live, machinery has been brought to such perfection as to eliminate largely the necessity of physical strength; but machinery uncontrolled is destructive both of human life and production. This thought is given expression in the figure of a young, vigorous, perfect man, indicating well balanced control. He emerges from and above machinery. It is through his mental-physical control that he governs machinery for the safety and production of the world; therefore predominating over his machine he holds the World in his hand.

1923

THE ladle is a great vital material factor in the production of steel. From the ladle comes the molten metal that is a material basis in the manufacture of steel. The human being is the life and soul of all manufacturing. Machinery is a vast unwieldy, destructive force that would crush human life and be unproductive unless wisely controlled and directed.

Four vigorous workmen, carry a ladle to typify intellectual and spiritual forces of human power, bearing material power with assurance and security, led by the figure Safety First. The figure of Safety First symbolizes not alone the security of the man, but by her winged helmet of Mercury, she typifies the soul of Industry and Commerce. Human beings are confident and secure under the leadership of an ideal.

AN interesting feature of the annual dinner of the operating officials of the Carnegie Steel Co., held at the Duquesne Club, Pittsburgh, Saturday evening, Jan. 10, was an exhibit of the safety trophies which the company has been awarding monthly and annually since 1922, to the plants making the best record in lost time accidents. The plant having the fewest lost time accidents in any one month, the rating being on the basis of the five year average of each plant, gets possession of the trophy for one month and also is allowed to fly a pennant denoting such possession for one month. The plant winning the trophy the most times in any one year gets permanent possession.

WOULD HELP BUSINESS

Bills Introduced to Make Work of Federal Trade Commission Constructive

WASHINGTON, Jan. 27.—Senator James W. Wadsworth of New York and Representative Arthur B. Williams of Michigan, both Republicans, have introduced identical bills intended to amend the Federal Trade Commission act for the purpose, according to a statement issued by Senator Wadsworth, of meeting criticism as to the scope and activities of the commission and to provide for a constructive and helpful administration of the law governing the commission. The proposed legislation apparently has been drafted to meet suggestions made in a minority report filed with Congress by Commissioner Nelson B. Gaskill, which, it will be recalled, the majority of the commission refused to let be published as a part of the annual report and which created a considerable stir.

Senator Wadsworth declared that the bill had been prepared by attorneys who had had a wide experience and practice before the commission and represented important business enterprises. He pointed out that the Federal Trade Commission act was passed in the first instance as an instrument of constructive help to American business to be applied in pursuance with a policy of procedure that would deal justly with the rightful interests of all concerned, but yet to effectively stop the use of competitive methods which are improper, unfair and against public policy.

The proposed legislation would change the policy of the commission, as suggested by Commissioner Gaskill in his minority report, so business interests against which charges had been made would be given an opportunity to cease and desist from the practice, should the commission feel that they were guilty, without the formality of issuing a complaint and entering upon hearings.

In this connection, however, the commission now has in effect a form known as a "stipulation of facts" which is somewhat similar to the suggestion made in the Wadsworth-Williams bill. But the form, it is said, has not worked out as satisfactorily as had been expected.

Senator Wadsworth declared that "the commisson has done much good, more than has been appreciated, probably by the public as a whole. Nearly eight years' experience under the act, however, has demonstrated the necessity for changes to bring the act up to date." The Senator calls attention to the fact that President Coolidge, in a message to Congress in December, 1923, declared that: "Revision of procedure of the Federal Trade Commission will give more constructive purpose to this department." The Senator said that while the

Carnegie Prizes Promote Safety

1924

A POWERFUL young horse stands firmly as if held by a strong hand, full of energy and impatience, ready to do the will of his master. On his neck is no bridle, but he has the firm control of a perfect will. The rider carries no weapon, for he is a constructive power for life and health. On his banner is 1924. His shield is Safety First. Standing on the pedestal below at his side is a large strong young workman—Human Power. The three in a beautiful co-ordination are a group—each giving and receiving strength as in a circle of perfect harmony. Human Power, with his hammer resting, looks up at the banner and meditates before he begins his work.

1925

THE Human Element, or hand work, here is represented as a workman standing by his anvil. He meditates before he begins his work, looking at the inscription Safety First, on the scroll that encircles his feet. The scroll has been placed there, and is held by the figure which typifies the spirit of Safety. The workman appropriately looks down at the words in his pathway, but the Ideal that is encircling him with precaution and warning, is looking forward into the future.

On the eager face of Safety is an expression of confidence inspired by the vision of benefits to mankind, that he sees. The great half wheel on the pedestal represents Safety in the industrial world, rising like the sun to send its rays over all the earth.

The several trophies are shown in the accompanying illustrations. That for 1922 was won by the Edgar Thomson works, Braddock, Pa., while those for 1923 and 1924 were won by the Farrell Works, Farrell, Pa. The trophy to be awarded for this year also is shown.

These trophies represent an outlay on the part of the company of more than $20,000, but the company regards this expenditure as well made, since it has stimulated competition in the different plants for a good safety record and in this way has helped materially in reducing the number of preventable accidents. Progress in this direction has been continuous.

bill had not been submitted to the President, it is hoped that it will meet and cover the matters touched upon by him.

While enactment of the bill at the present session of Congress is considered altogether improbable, favorable action by the next Congress is held to be probable provided the measure gets presidential approval.

There also has been talk of further revising the Federal Trade Commission act in a wholly different respect. This proposal would permit the Secretary of Commerce to say affirmatively when a complaint should be issued. But it would not give him authority to pass jointly with the commission itself as to when a complaint should not be issued. Legislation of this kind was once proposed, but never reached beyond consideration by a committee. At that time the object of the proposed legislation was to overcome difficulty which, it is said, was experienced in having complaints issued by the commission in certain cases.

Reports of these plans are associated with other reports, believed to be well taken, that the administration after March 4 contemplates reorganization of the Federal Trade Commission, the Tariff Commission and the Shipping Board. Such a sweeping proposal, it is held, could be brought about only through support of the President by a Republican working majority in Congress, which apparently he will have with the incoming Congress.

National Study of Distribution

More than 200 delegates representing trade associations and manufacturing and merchandising organizations met in Washington at the Chamber of Commerce of the United States, Jan. 14 and 15, to set in motion a widespread study of the distribution problem and of methods for reducing distribution costs. The conference was opened by Richard F. Grant, president of the Chamber of Commerce. One of the principal addresses was made by Secretary Hoover, who called attention to wastes in our present methods of distribution.

A tentative program looks to the study under six special committees of (1) collection of business figures as a means toward accomplishing economies; (2) trade relations; (3) market analysis, including advertising; (4) expenses of doing business; (5) methods of distribution; (6) general conditions affecting distribution. Chairmen of the committees include A. L. Filene, Boston, on trade relations; Stanley Resor, Chicago, on market analysis; Robert Ellis, Memphis, on business methods; Dr. Melvin T. Copeland of Harvard University, on distribution methods, and Sidney Anderson, on general conditions affecting distribution. For the committee on business statistics it is said that Owen D. Young possibly may become the chairman.

CALLED PARTIAL SUCCESS

Sage Foundation Publishes Report on Rockefeller Plan of Employee Representation

The Rockefeller plan of employee representation, which was introduced in the mines of the Colorado Fuel & Iron Co. immediately following the strike of 1913 and which has since been adopted in many other plants has proved to be only a partial success, according to a preliminary report made public by the Russell Sage Foundation, which since 1919 has been studying the operation of this and other plans for giving wage earners a share in the management of industry. The full report, covering 500 printed pages, will be issued within the next month. The report states that as a result of this plan, working and living conditions are more wholesome and happy for the miners and their families of the Colorado company, but that the miners are not satisfied that their representatives have the power to protect them in decisions regarding wages and other conditions of work.

The report points out that at the Colorado Fuel & Iron Co. the employees' representatives are men who work in the mines and who do not feel free to act in opposition to the company's interest in the defense of fellow employees; that employees are not making full use of the plan even for the presentation of grievances; that in actual practice the employees' representatives have no share in decisions concerning reported grievances; that the issue of trade unionism versus employees' representation is kept constantly alive by the company's refusal to permit union meetings in any building in the camps owned by the company, by other frequent instances of antagonism to unions and by the company's policy of accepting the wage scale of its competitors which has actually been set by unionized companies through negotiation with the United Mine Workers, while refusing to deal in any way with the miners' union.

The report credits the company with a much more liberal attitude toward unionism since the employees' representation plan was introduced, but adds that a conflict is in existence in Colorado between employees' representation and trade unionism, which must be dealt with before any plan can be made to work satisfactorily.

The concluding chapter of the report says in part: "This particular plan has had so much publicity and has been copied so widely that it presents definitely a challenge to the trade union movement; it must be considered by the unions on its merits, and not ruthlessly condemned as their natural enemy. The United Mine Workers openly and bitterly denounce the Rockefeller plan. The Colorado Fuel & Iron Co., in the words of its general manager, sees numerous good reasons for not signing a contract with the union. No fruitful discussion between these two groups would be possible unless each approached it with the will not to press the solution of its own group for acceptance, but rather to think first of the needs of the man in the mines and then to work out the agreement which will best meet those human needs. From this would follow, we are confident, a spirit and method of managing the industry which would better serve also the public interest."

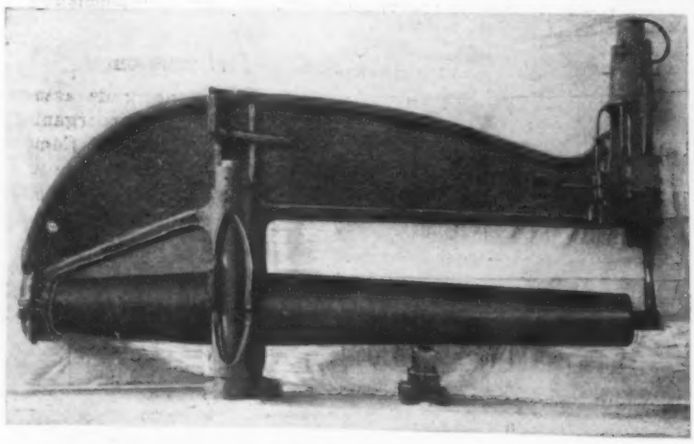
The report, entitled "Employees' Representation in Coal Mines," was prepared by Ben M. Selekman, of the Sage Foundation's Department of Industrial Studies, and Miss Van Kleeck, director of the department. The operation of the industrial representation plan in the steel mills of the Colorado Fuel & Iron Co. was made the subject of a separate investigation by the Foundation, and the report of this study, which is to be issued shortly, holds that the company has been in advance of other companies in the steel industry in its dealings with employees.

[A report on the employee representation plan and other activities of the Colorado Fuel & Iron Co. made by Gilbert L. Lacher, Western editor of THE IRON AGE, written after visiting the plants of the company and investigating conditions, will be found on pages 325-330 of this issue.]

Hydraulic Machine for Riveting Boiler Drums

The 200-ton six-power hydraulic riveter illustrated, built recently for the D. Connelly Boiler Co., Cleveland, by R. D. Wood & Co., Philadelphia, is used in riveting water-tube boiler drums, for which class of work it has been especially designed.

The length of the machine is approximately 30 ft.,



and the weight close to 200,000 lb. The gap or reach is 18 ft. 6 in. and the daylight space between the stakes is 30 in. at the root of the gap. The machine is provided with a forged steel stake the maximum diameter of which is 40 in., and which carries on its upper end a special chrome-nickel steel horn 9¾ in. in diameter. This permits of riveting boiler heads ranging from 42 to 72 in. in diameter into boiler drums of corresponding sizes through a standard 12 x 16-in. manhole.

The outer stake and riveter head of the machine are of cast open-hearth steel. They are connected by two tension bolts which are 12 in. in diameter, and are located on either side of the riveter.

Steel Houses Built Like Ships

Announcement has been made that William Beardmore & Co., Ltd., Glasgow, Scotland, will utilize equipment heretofore occupied in building ships for the construction of steel houses. With materials including plates and shapes, it is expected that the speed of construction will be far greater than is possible with the usual house-building materials and will contribute also toward wider employment in the steel industry of Great Britain.

Steel girders will be used for the framework of the houses, the outer wall being of heavy steel plating. An inner wall of non-conducting material will be separated from the outer wall by an air-space to maintain equable temperatures inside. Such a house will be proof against damp, vermin and fire. The steel will be treated with a composition on the inner side to render it immune from condensation.

A course on technique of personnel management, by H. B. Bergen, manager of personnel department, Henry L. Doherty & Co., New York, is announced by the New York University School of Commerce, Accounts and Finance. Two sections will be given, both meeting on Tuesday evenings from Feb. 3 to May 13, 1925, one from 5:15 to 7 p. m., and the other from 8 to 9:45 p. m. Information may be obtained at the Wall Street Division or from the Department of Business Management at Washington Square, New York.

1924 AUTOMOBILE PRODUCTION

More Than 3,600,000 Cars and Trucks Turned Out in 12 Months—Second Largest Year in History

Figures of the Department of Commerce show a production in 1924 of 3,261,682 passenger cars and 375,396 trucks, making a total of 3,637,078 vehicles. This compares with 3,637,216 passenger cars and 376,444 trucks in 1923, which was the record year and furnished a total of 4,013,660 vehicles. Except for 1923 and 1924, the largest year we have had was 1922, when the aggregate for both classes was 2,586,519, a figure which has been exceeded by more than 1,000,000 vehicles in the year just closed.

December, with 182,023 passenger cars, by far the smallest month of the year, made the smallest showing since March, 1922, when the total was 152,962 cars. Beginning with May, 1922, and ending with November, 1924, every month except September, 1922, showed more than 200,000 passenger cars produced.

In trucks, 1924 was very close to the 1923 record and was far ahead of any previous year, being more than 50 per cent greater than in 1922 and about 20 per cent above the 1919 and 1920 figures, which were the largest previous to 1923. The number of trucks produced in 1924 was only 0.3 per cent under the number in 1923.

For the first time the department's report is split up between production in the United States and production in Canada. Canadian production has been approximately 4 per cent of that in the United States, although in some months the figure has dropped to little more than 2 per cent and in some has gone above 5 per cent. Canadian figures are given for the last nine months of 1924, the total for that period having been 80,137 passenger cars and 11,743 trucks—figures in both cases which are less than one-half of a single month's production in the United States.

BETHLEHEM EARNINGS GAIN

Marked Recovery Made Over Third Quarter of Last Year

Fourth-quarter earnings of the Bethlehem Steel Corporation were nearly one-third greater than those for the third period last year; surplus available for common stock of $1,940,539 was shown against a deficit of $972,962 for the September quarter; net earnings for the entire year were placed at $33,996,489 against $37,373,228 in 1923; value of orders on hand Dec. 31 totaled $77,049,019, compared with $49,907,161 on Sept. 30, and $53,265,000 as of Dec. 31, 1923. These figures were presented in the quarterly report of the Bethlehem Steel Corporation issued on Jan. 22, following a meeting of directors. The earnings statement offers a good index of the rapid recovery of the steel industry at the close of 1924, even in the face of low selling prices. Directors declared the regular quarterly dividends on preferred stock.

Earnings Compared

The following table shows earnings for the last two quarters of 1924 and for the last quarter of 1923:

	Fourth Quarter, 1924	Third Quarter, 1924	Fourth Quarter, 1923
Net earnings	$9,550,715	$6,495,731	$9,935,147
Interest charges, etc.	3,498,539	3,466,107	3,270,245
Balance	$6,052,176	$3,029,624	$6,664,902
Depreciation and depletion	3,036,314	2,927,457	2,846,460
Net income	$3,015,862	$102,167	$3,818,442
Pfd. dividends	1,075,323	1,075,129	1,075,129
Com. dividends	.....	.....	2,251,461
Surplus	$1,940,539	*$972,962	$491,852

*Deficit.

Preliminary earnings statement comparing 1924 and 1923 appears below:

	1924	1923
Gross sales	$243,904,266	$275,213,000
Net earnings	33,996,489	37,373,228
Interest, etc.	13,233,417	12,322,997
Balance	$20,763,072	$25,050,230
Depreciation and depletion	11,846,891	10,676,078
Net income	$8,916,181	$14,374,152
Preferred dividends	4,300,583	4,318,253
Common dividends	2,247,571	7,767,023
Surplus	$2,368,027	$2,288,824

President Grace's Statement

President Eugene G. Grace said, in part:

"The trend of prices during most of the year was gradually downward, the average billing prices for December being approximately $9 per ton lower than in January. The increased demand throughout the fourth quarter not only checked the declining prices but resulted in prices advancing $2 to $4 per ton.

"Operations for the fourth quarter, on business billed at the reduced prices noted above, yielded $9,550,715 net earnings, compared with $6,495,731 for the third quarter. These earnings, after providing for the payment of all fixed charges and dividend on the preferred stock, left $1.08 earned per share on common stock, compared to a deficit of 54c. per share in the third quarter, thus reflecting the improved conditions. In the fourth quarter plants of the corporation were operated at 69.9 per cent of capacity, as against 42.5 per cent for the third quarter. Earnings for the year amounted to $2.56 per share on the common stock.

"Balance sheet as of Dec. 31, 1924, will show current assets over current liabilities of $136,489,069, compared with $119,724,173 the previous year, the ratio of assets to liabilities being 5½ to 1. Cash and liquid securities as of Dec. 31, 1924, amount to $48,958,000, compared with $35,521,000 Dec. 31, 1923.

"Net additions to property account for plant construction during the year amounted to $17,504,966. The estimated cost to complete construction authorized and in progress as of Dec. 31, 1924, was $31,000,000, cash for which is all provided.

"The only new financing by the corporation during the year was the sale in April of $30,000,000 of consolidated mortgage 6 per cent bonds, to provide funds for improvements and additions to properties.

"Gross sales and earnings for 1924 aggregated $243,904,266, as compared with $275,213,000 for 1923. Total amount of new business booked during the year amounted to $267,688,974, as compared with $260,968,000 for 1923.

"The first three months of 1924 showed a gradually increasing volume of business, reaching 79 per cent of capacity in March, the high point for the year. From that time operations rapidly declined to a low of 31 per cent of capacity in July, after which there was a gradual increase reaching 73 per cent of capacity in December. The present volume of business is in excess of 80 per cent of operating capacity."

Foreign Competition Not Feared

President Grace pointed to the distinctly lower prices of steel products obtaining in the last quarter, as compared with the final quarter of 1923, and to the slight difference in total earnings for the two periods; the improvement he attributes largely to better coordination by all Bethlehem units. Satisfactory progress is being made with new improvements under way. It is expected that all such projects will be completed in 1925 with the possible exception of the wire unit now under construction at Sparrows Point, Md. Nearly all contracts for this work are placed.

To Mr. Grace the outlook for the steel industry is good and he believes present operations will be sustained for some time. He sees signs of a good year in rails and structural business. Buying has been tempered by actual consumption needs, he believes, hence a healthy demand should ensue.

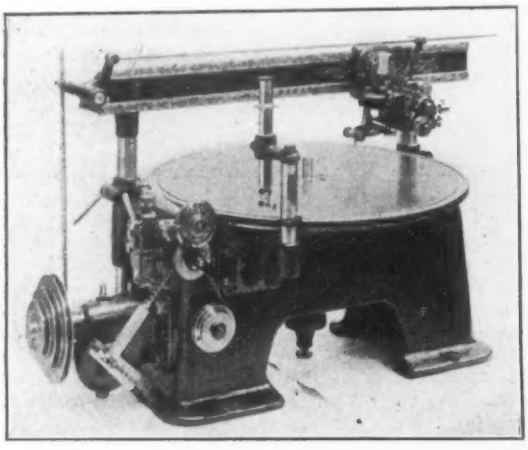
There is little cause for fear of foreign competition in steel products, as Mr. Grace sees it. Besides having an abnormal demand at home to supply, European makers will no longer profit by exchange advantages, once European currency resumes its former status.

Circular Dividing Machine Adapted to Manufacturing Uses

A circular dividing machine of the bench type, adapted to manufacturing uses and built more substantially than the previous model, which it replaces, has been placed on the American market by the R. Y. Ferner Co., Investment Building, Washington.

The space occupied by the machine, which was developed by the Société Genevoise d'Instruments de Physique, Geneva, Switzerland, is 26 x 42 in. The height is 28 in., and the weight 365 lb. Accuracy to plus or minus 6 sec. is guaranteed.

The construction of the machine may be noted from the illustration. The cross beam is adjustable in height



Bench Type Circular Dividing Machine of Swiss Design

and provides a mounting for the tracing tool. The latter is of improved type and is adjustable so that the graduations may be ruled on plane, conical or cylindrical surfaces. The tracing tool is provided with three ratchet wheels with 20 to 32 teeth, as well as with nine disks for control of the length of lines. There are also five ratchet wheels for the worm screw which operates in the teeth cut in the edge of the circular table. The various combinations of ratchet wheels are said to permit the user to obtain a wide variety of styles of graduation.

The table is 25¼ in. in diameter and is fitted with a graduation on an inlaid silver strip ruled to sixths of a degree. The locating microscope is for use in reading this scale when a special setting is to be made or in testing finished work. The repetition pawl device is controlled by a chain which is rolled on the periphery of a case containing a spiral spring, the pawl device being driven by a crank handle with adjustable eccentricity. The driving pulley controls, by means of a speed reducer, the crankshaft which drives the worm screw and the tracelet. The step pulley provides speeds from 200 to 600 r.p.m. The machine may be driven by a 0.15 hp. motor.

There are 720 teeth in the periphery of the table, one revolution of the worm screw advancing the table half a degree. The maximum size of work done on the machine is 23½ in. in diameter and 4 in. in height. The maximum length of line obtainable is 1 in.; the thickness may vary from 0.004 to 0.06 in. Depth of lines may be up to 0.04 in. The machine rules from 10 to 30 lines per min.

Increase in Coal Consumption Indicates Business Improvement

The National Association of Purchasing Agents estimates that almost 5,000,000 more tons of coal were mined in December than in November, 1924. The estimated production for November totaled 48,281,000 tons as compared with a total of 53,085,000 tons in December. December production was divided 7,235,000 tons of anthracite and 45,850,000 tons of bituminous.

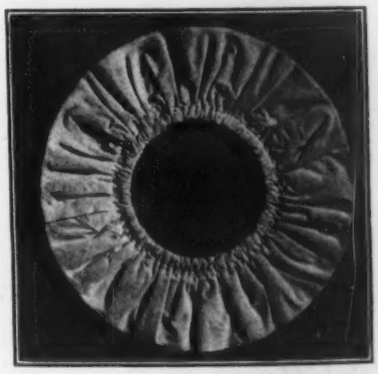
Notwithstanding the fact that more coal was produced in December than in the previous month, stocks in the hands of industry diminished by about 12 per cent, it being estimated there were 50,458,000 tons in the hands of industries on Jan. 1, 1925. This compares with 57,376,000 tons on hand Dec. 1, 1924. The total consumption of coal by industries and for heating was estimated at 42,700,000 tons, of which more than two and a quarter million tons is believed to have been used in domestic heating, etc. The remainder, 40,500,000, was consumed in industry. This figure would have been much higher, it is believed, had not many industries closed for three days at Christmas on account of its falling on Thursday. "The coal figures therefore signify that there was a real business improvement in December over November," says the association bulletin.

Buffing Material Cut on Bias

A buffing material, known as the centerless bias buff, the feature of which is that the cloth is cut on the bias, a construction claimed to provide increased life, require less physical effort on the part of the operator and to provide a well-balanced wheel, has been placed on the market by the Bias Buff & Wheel Co., Inc., 430 Communipaw Avenue, Jersey City, N. J.

It is claimed that at all points on the circumference of the buff the threads point at approximately 45 deg. to the tangent at any point. It is said that threads cannot fly off, that they whip the work, each thread on end and holding firmly embedded its proportion of tripoli. The consumption of tripoli is estimated to be about one-half that of the usual loose buff. Special flanges have been developed to hold the buffs. These are arranged to hold a number of sections, the flange for a ten-section wheel being adjustable to hold from eight to 12 sections.

In a demonstration ten sections of the bias buff were speeded up to 2400 r.p.m., making, it is claimed, a wheel face of 2⅝ in., or ¼ in. more than ten sections of 18-ply loose buffs of the same sheeting run at the same speed, which made a face of 2⅜ in. A feature stressed by the makers is the cleanliness of the polishing room permitted by the bias buffs. A wheel of ten sections of the buff illustrated was placed on a spindle



Buff, the Cloth for Which Is Cut On the Bias. It is claimed that at all points on the circumference the threads point at 45 deg. to the tangent at any point

and the face raked down, very few threads coming out and little lint or dust emerging from the wheel. A reason assigned for the operation of the new buff at higher speed without burning is that because of the construction air jackets are formed between each ply of the buff and the next one, thus acting as insulation against heat.

In addition to its economy the new buff is said to be used to unusual advantage on certain classes of work. In polishing radiator shells on which emery is used, frequently leaving the marks or scratches in the shell, it is said that the bias buff will spread copper plate in a manner that covers up these scratches better than usual. On brass work, which is colored after dipping with a white finish, a so-called 64/68 or 80/92 bias buff is said to give a finer luster because the operator does not have to bear so hard on the work. The buff illustrated made in 48/48 sheeting and properly raked down is claimed to present a velvet-like surface to the work similar to canton flannel.

Iron and Other Metals for Ingot Molds

Influence of Certain Thermochemical Factors—Analyses of Metal Used—Special Alloys for Molds

BY J. H. HRUSKA*

IN the ultimate cost of operation, as influenced by the rate of production, an essential factor is not only the selection of a method for producing a sound ingot, but also the adoption of the most economical steel works equipment. In efforts to reduce cost of production a thorough study of all these variable factors has to be made. To be of practical value the investigating method must cover especially those parts of the foundry or steelworks operations which represent a constant factor in the production costs.

In addition to the melting and refining expenses of the ingot metal, there is one of the most important steelwork problems—not yet understood in its details—the effect of molten and solidifying ingot steel on the life of ingot molds. Based upon personal observations and studies of molds and ingots up to 120 tons, the author in this article attempts to designate some of this effect, usually overlooked in a majority of plants but a factor which very often represents an important point in the efficiency of the plant manufacturing ingots.

Thermochemical Factors Influencing Ingot Molds

To be useful at high temperatures the ingot mold must resist not only the destructive action by physical causes such as erosion but also the different thermochemical actions of the molten and solidifying steel, to which it is exposed, as for example, high temperature corrosion.

The steel, as poured into the mold, always contains oxygen and the deterioration of the mold metal, subjected to this influence, depends upon:

1—The temperature of the molten steel.
2—The amount of oxygen present in the ingot steel (in cold steel from 0.020 to 0.070 per cent O, in molten steel considerably more).
3—The duration of contact.

With the exception of the chemical influence of molten steel upon the ingot mold surface, the mold metal loses its appearance and physical properties by a phenomenon corresponding to mechanical fatigue in structural steel ("thermal fatigue").

To investigate these thermochemical factors of deterioration, the author examined in one of Europe's largest steelworks a corroded ingot mold of 80 tons capacity and of normal composition (see Table) and found that the corrosion took place at a point about three-fifths of the height of the mold (the ingot top is not taken into consideration). He found that the center of each side of the octagon was deeply corroded (to about ½ to ¾ in.). An average sample taken from these parts showed an unusual brittleness and was doubtless the result of the thermochemical reactions between ingot mold and molten steel. The analysis was:

	Per Cent		Per Cent
Fe O	96.23	Silica	3.48
Mn O	1.13	Total carbon	0.07

The analysis of the steel usually poured into this mold was always within the following limits:

	Per Cent
Carbon	0.35 to 0.43
Manganese	0.75 to 0.80
Silicon	0.20 to 0.25
Phosphorus	0.015 to 0.025
Sulphur	0.025 to 0.035

Except in such instances the iron used for ingot molds must show exceptional resistance against quickly changing thermal conditions. Sometimes the molds are exposed to a sudden heating and sudden cooling. In other cases they are heated very quickly by the steel and then cooled down slowly for 5 to 100 hr. and even more, being heated inside much higher than in the outside layers.

The alternate expansion and contraction, as an effect of pouring the steel into the mold and stripping the hot molds off the ingots or even water cooling of the ingot molds, cause strains in the molds. But strains can be relieved only by a careful annealing. An ingot mold under severe conditions, such as daily use, should be annealed at least once in two to four weeks; large molds for 25 to 120-ton ingots should be treated when convenient, for instance, after 15 to 20 heats. In considering the long cooling time for large forging ingots, an average of some of the author's observations is the following:

Weight of Ingot, Tons	Time Necessary for Cooling, at 200 to 400 Deg. Fahr., Hours
5	18- 22
10	22- 25
25	28- 33
50	35- 40
120	90-110

Chemical Analysis of the Molds

To cover all these governing thermal and chemical requirements proper care must be taken not only in the design of the ingot mold, but especially in the selection of a metal suitable for the strenuous service to which it is exposed. Iron of a medium soft character, low in phosphorus and sulphur, or what is known as commercial Bessemer pig iron, is found best for ingot molds.

On the other hand the use of steel as a mold metal has disclosed, under a very careful handling of the molds in many plants, excellent results; 250 to 300 heats per mold (2 to 5-ton ingots) is often their usual life. Of course, in these extreme cases the molds were not cooled by means of water and thus the plant supplied enough molds so as to allow only slow cooling of the mold. As mentioned, the handling of the hot molds especially during and after stripping is an important factor in the life of steel ingot molds. The analysis

*Metallurgist International Harvester Co., McCormick Works, Chicago. At one time the author was connected with the Skoda Works in Czecho-slovakia.

Table of Analyses of Ingot Mold Metals

Author	Total Carbon Per Cent	Cr Per Cent	Si Per Cent	Mn Per Cent	P Per Cent	S Per Cent
Cast iron molds:						
Thomas D. West	3.87	.....	1.67	0.25	0.095	0.032
J. J. Porter	.....	.....	1.25 to 1.50	0.60 to 1.00	under 0.200	under 0.06
Richard Moldenke	3.75	.....	1.25	0.80	under 0.200	under 0.06
J. H. Hruska	3.50 to 3.75	.....	1.00 to 1.50	0.75 to 1.20	under 0.150	under 0.06
Special cast iron:						
Hiroshi Shiokawa	2.50 to 3.50	0.05 to 0.50	1.00 to 2.00	0.50 to 1.50	under 0.200	min.
J. H. Hruska	3.50 to 3.00	0.25 to 0.50	1.00	1.00 to 1.50	under 0.150	under 0.06
Steel ingot molds:						
F. Schivetz	0.22 to 0.47	.....	0.05 to 0.25	0.40 to 0.60	0.06 to 0.09	0.04 to 0.06
J. H. Hruska	0.35 to 0.45	.....	0.20 to 0.35	0.50 to 0.70	under 0.04	under 0.04

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It is well known that the location of an impact test bar in relation to the direction of rolling, i.e., whether it is a longitudinal or a transverse bar, greatly affects the results and that, if both longitudinal and transverse bars are taken, the results throw much added light on the quality of the material. This series of specimens, all cut longitudinally, shows that the location of the notch on the top or side of a longitudinal specimen from a flat plate also throws much light on the directional properties of the material. The differences brought to light by the impact tests are shown to be directly connected with the number and type of inhomogeneities present, whether they be non-metallic inclusions or essential metallographic constituents.

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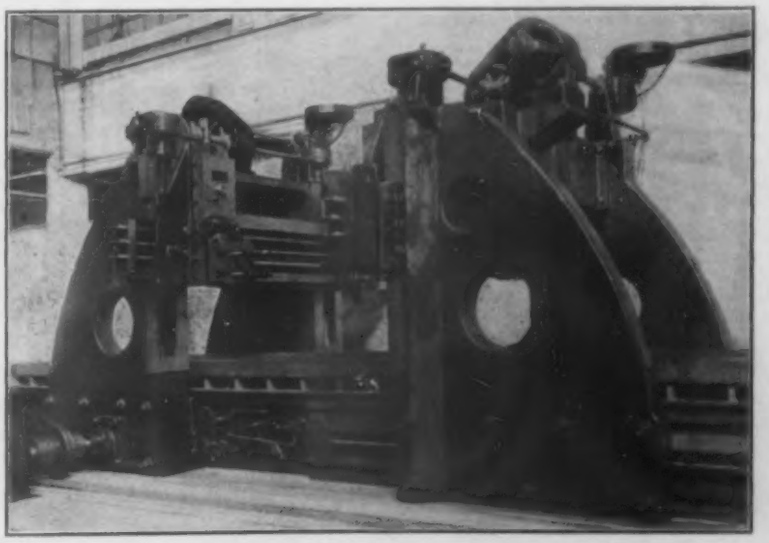

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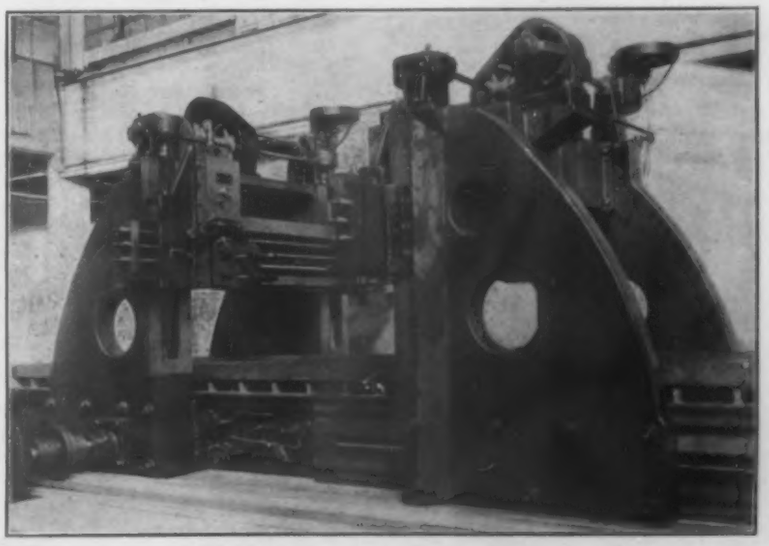

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Standardization of Product Aids Handling

Uniform Containers Advocated as Further Step Toward Lower Material Handling Costs —Wire Mill Practice

BY E. T. BENNINGTON*

WHEN I recommend standardization I do not mean "produce only one part or piece," but produce as many styles and kinds as standardization will permit. To illustrate this point, a large bolt and nut factory in the East always has operated an up-to-date plant insofar as the machine tools are concerned, but only recently has installed machinery to take the material to and from these machines. At one time this company was making anything that a customer asked for in any quantity. The customer specified the kind of steel to be used, the style of thread, etc., even on small orders. Every order the shop received was run through as a separate item and had to be kept separate, throughout the plant, from the other orders. Sometimes these orders would consist of only 10 or 15 special bolts and there were hundreds of individual orders in process of manufacture at all times.

Finding that this made the use of material handling machinery impractical and the cost of production extremely high, the manufacturer finally selected certain sizes and kinds and gave his customers a printed stock list at regular intervals. As a result, a customer who ordinarily would have ordered a bolt with a square head for a certain job would take instead a bolt with a hexagon head, because he knew that that bolt was standard and he could get good delivery. The manufacturer thus put himself in a position where he could figure ahead on what his orders would call for, and he could run his product through the shop in larger lots, which made practical the use of machinery.

Making Containers All One Size

The next step was the standardization of the container in which the material was handled through the shop. This was the important step from the material handling machinery point of view. It formerly was the custom of this shop to use containers of all sizes, the size depending usually on the size of the customer's order; but with continuous production in effect only one size of container is used. Of the size best suited to the material handling machinery, this consists of a bucket which takes about 1200 lb. of bolts at one time. Therefore, with only one size of container to handle the product of one machine to another and from one department to another, it became possible to use only one kind of material handling machinery. And the machinery was so installed that the individual pieces which must be handled by hand in feeding a machine are always at the operator's elbow, and an empty container at his other side, in which the finished pieces are placed. When this container is filled, it is pushed to the machine that performs the next operation.

Increase in production and decrease of labor went beyond the fondest expectations of the manufacturer at the time he went into this scheme. He increased production because he was able to keep his machines constantly turning out product. The operators had raw material at all times. It was not necessary to permit machines to run idle every few minutes while the operator procured another 50-lb. tote box of raw materials or disposed of finished material, as had been true under the old scheme of things. The handling labor was reduced because 1200 lb. of material could be handled by machinery in about the same time that it took to handle 50-lb. tote boxes by hand.

With every engineer planning a material handling machinery installation one of the first questions that must be answered is regarding the size and number of containers or units of production to be handled, or that the nature of material will permit being handled. This must be determined before the type of material handling machinery to be used can be decided upon. There is no standard rule that can be applied to this problem. Even in the same industry, the conditions of each plant are usually the determining factor.

Larger Wire Bundles Used

About three years ago one of the large steel companies decided to build a new wire mill that would be the last word in wire mill construction. One of the first questions that had to be settled in designing the buildings was the size of the bundles of wire that would be produced or, in other words, the size of the unit of production. In the early days of the wire mill industry most mills produced a 50 to 75-lb. bundle and, as years went by, the size of the bundle kept increasing as new and larger equipment was added, until some mills were producing 200-lb. bundles. The engineer in charge of the design of the new mill finally decided to install equipment to produce wire in 300-lb. bundles and to install material handling machinery to handle these weights. Some of the old hands at the business predicted failure at the start, but it has been proved conclusively that 300-lb. bundles are possible, provided material handling machinery is used. Such heavy bundles would be impracticable if it were expected that men would have to lift and carry them.

This mill has been in operation for about two years and today dozens of mills in the country have adopted 300-lb. bundles. These mills are in most cases the largest mills, and it is safe to say that other mills will have to increase the size of bundles to compete with the production costs that are being made at these mills.

Not long ago a wire mill operator, who has achieved prominence through his ability to originate new ideas and make them work, told me that when he builds his next wire mill he will produce 1000-lb. bundles. I have gone into this subject carefully, and can see no reason why this cannot be done in drawing ordinary wire. A 1000-lb. bundle will affect the accuracy of small wire, however, for the last end of the coil will likely be somewhat larger than the first end as it goes through the die, as the hole in the die wears larger. But this inaccuracy would not affect such products as nails, fence wire, etc.

The advantage of large bundles in a wire mill is reflected in the operating costs of every department. The wire drawing equipment, nail machines, rivet machines, annealing, galvanizing and patent process department, and to some extent the fence and fabric machines, will all be affected. These machines are practically all automatic in their operation. The only work that the operator is called upon to do is to start the wire going through the machines and to remove the finished material.

Therefore, if 300-lb. bundles were substituted overnight in a mill that formerly ran 150-lb. bundles, the machines would be charged only half as often. In other words, the cost of charging the machines is cut in half and this cost is usually more than half of the labor required to turn out the finished product. This is because it takes more of an operator's time to start the wire through the machine than it does to remove the finished product, which usually comes out in coils, barrels or tote boxes. Therefore, when this mill started

*Manager electric tramrail division Cleveland Crane & Engineering Co., Wickliffe, Ohio. This is the concluding portion of an address delivered to the Cleveland Engineering Society; the first part appeared at page 213 of THE IRON AGE of Jan. 15.

with 300-lb. bundles, it could discharge 25 per cent of the employees and, by doing so, would increase the capacity of the mill, as the machines would not be shut down so many times during the day to start a new bundle of wire.

No mill is producing 1000-lb. bundles yet, but if one or two large mills start it, the others will have to do the same or sell their product for less than it costs to make it.

Textile Mills Using Larger Units

The textile industry in the New England States is face to face with this subject. A few mills in New England are adopting every new and sound idea that will decrease production costs or improve quality, and it is safe to say that 10 years from now these mills will be the real leaders of the industry. They have the advantage of the new mills that are springing up in the South in the fact that they have the prestige and foundation that goes with an old and established concern and combine with this foundation aggressiveness, nerve and ambition.

Not many years ago the textile mills were winding their warp beams with about 50 lb. of cotton or wool, as the case might be, but few mills are using beams so small today. The usual size of beam in mills where material handling machinery is not used is from 150 to

(Above) Illustrating the Manner in Which 300-Lb. Bundles of Wire Are Handled by Easily Propelled, Push-Button Controlled, Hand-Power Cranes. 300-lb. bundles of wire would be impractical without the use of material handling machinery

A Material Handling Engineer Oftentimes Is Called Upon to Devise Ways and Means of Increasing the Storage Capacity of the Given Space. At left is illustrated the way in which this problem was solved in a large automobile factory

Handling a Ton of Hot Rod from the Rod Mill To Storage and From Storage to the Wire Mill Without It Being Touched by Human Hands Is an Unusual Material Handling Accomplishment (at Right)

300 lb., and in mills where material handling machinery is used the beams usually weigh from 600 to 1000 lb. On some types of fabric a beam of this size will last a week. It takes a long time to install a beam on a Jacquard loom or any other loom that weaves fancy patterns, as each thread must be connected to its proper place. Therefore, the larger the beam the less frequently a new beam has to be installed, which cuts down the non-productive time of the machine and lessens the labor required to handle and move the material through the plant to the looms.

We recently sold material handling machinery to an artificial silk company that handles 1000 lb. of raw silk on one spool. The tendency to increase the unit of production is plainly apparent in a number of large industries.

Practical Limits to Size of Production Unit

There is, of course, a practical limit to the size of unit. Rarely have I seen instances in which the units of production have been increased beyond the size that one man can handle with the material handling machinery provided, and I believe it is this factor, more than anything else, that should limit the size of the production units. Therefore, if the size of the production units is to be increased, it places the burden on the shoulders of the material handling machinery manufacturers to design and build the machinery so that the hand-propelled machinery will move easily. It must not be too heavy or cumbersome in itself and it must be flexible enough to be adapted readily to the usual type of manufacturing plant without necessitating alteration of the plant or relocation of machinery or other expensive changes.

Electrical machinery or power-driven machinery should have incorporated in its design all of the refinements of detail and of control that modern science and engineering have made possible. Last, but by no means the least important, the material handling machinery that is to be used as part of the production machinery must be substantial. The progress that has been made in the designing and refining of material handling machinery in the past few years must be surprising to one not actively engaged in the business.

Some manufacturers are employing steel of unusual tensile strength in an effort to give strength and lasting qualities and at the same time reduce weight to a minimum. This is a plan which all manufacturers of machinery of this nature must adopt sooner or later. Ordinary cast iron or semi-steel have no longer a real place on a machine that must be moved about a plant by power or hand, as the same strength can be obtained from material of about one-quarter the weight, which increases the flexibility and increases the life of the machinery.

The ten miles per hour that some material handling machinery is called upon to deliver is considerably greater than the requirements, along this line, of automobile trucks, etc. For this reason the necessity of using high-grade material and light weight construction must be apparent to every engineer, because material handling machinery used in industrial plants must get around shorter corners, it must start and stop quickly and the requirements of flexibility and control in handling are much more important than the same requirements in an automobile. For this reason most material handling manufacturers are spending thousands of dollars every year in an effort to decrease the weight and at the same time improve the quality of their product.

Locomotive Shipments in 1924

Figures for the entire year show that 1465 locomotives were shipped from the principal American manufacturing plants in 1924, compared with 3189 in 1923. About 10 per cent were for export in 1924, compared with 6.3 per cent in 1923, according to the Department of Commerce. The monthly figures for the two years, with exports separated from the domestic shipments, are given in the table.

Unfilled orders at the end of the year were for 431 locomotives. This is somewhat below the average month by month through 1924, and is far below the high totals of 1923, in which nine months showed more than 1100 unfilled orders each, while four of these months showed orders unfilled for more than 2100 locomotives.

	Shipments, 1924			Shipments, 1923		
	Total	Domestic	Foreign	Total	Domestic	Foreign
January	151	147	4	229	217	12
February	99	92	7	207	196	11
March	132	128	4	282	269	13
April	73	63	10	217	201	16
May	111	93	18	238	228	10
June	145	134	11	232	221	11
July	140	130	10	239	211	28
August	139	121	18	272	259	13
September	104	79	25	335	313	22
October	96	78	18	310	295	15
November	133	123	10	299	270	29
December	142	132	10	329	305	24
Total	1,465	1,320	145	3,189	2,985	204

Meeting of International Chamber of Commerce in Brussels

The third general meeting of the International Chamber of Commerce will be held in Brussels, Belgium, June 21 to 27, for the discussion of world trade problems. The American delegation will sail from New York on June 10 on the S. S. George Washington. Following the Brussels meeting, the American delegates will have the option of taking one of four tours.

The American Association of Engineers will hold its annual convention on June 2 to 5 inclusive, at Orlando, Fla.

Development of Lake Calumet Harbor

A proposed development which would have an important bearing on the growth of the iron and steel industry in the Chicago district is the effort of the New York, Chicago & St. Louis Railroad to obtain from the city of Chicago a franchise to build an eight-mile belt line around Lake Calumet in South Chicago in return for which it would defray the expense of dredging the lake and build slips, docks, and railroad terminals at a cost of $6,000,000.

To cover the cost of the dredging the railroad company offers to pay in advance at the rate of $2,000 an acre for 103 acres of land owned by the city, $2,000 an acre for 84 acres of right-of-way, and $2,000 an acre for the right to utilize the property in the construction of a belt line. This would be to supply funds to dig the first unit of the harbor in the form of a channel 200 ft. in width, extending from a turning basin in the Calumet River near the Ford plant northwest to One Hundred and Third Street, also dredging turning basins at the north and a mile further south. The railroad company likewise agrees to dredge 12 slips with a width of 450 ft. and ranging from 1000 to 3200 ft. in length and provide an anchorage basin 1600 ft. wide and 12,000 ft. long. With the completion of the slips and basins there will be room for 125 lake vessels 600 ft. in length to unload and load. The total area of the proposed harbor will be 2144 acres, of which 693 acres will be devoted to slips and anchorage.

For the present, at least, I. Lamont Hughes, recently elected a vice-president of the Carnegie Steel Co. in direct charge of operations in the western district, will maintain headquarters at the Ohio works, in Youngstown, where he has been located as district superintendent. Important plant extensions will soon be started in the district under Mr. Hughes' jurisdiction, including the installation of three bar mills at the Carnegie company's McDonald plant in Trumbull county, and the construction of open-hearth capacity at the Mingo Junction property, in Ohio. L. N. McDonald is assistant general superintendent of the Carnegie company's properties at Youngstown and vicinity.

Tariff Reductions Have Disastrous Effects

Canadian Industries Depressed and Production Greatly Reduced—Promise of No More Tinkering with Present Schedule Made by Prime Minister

BY F. SANDERSON

TORONTO, Jan. 20.—The iron and steel industry is one of the most important factors in Canada's national life. According to the latest returns available there were in 1922, 1046 firms engaged in the manufacture of iron and steel products in this country, located as follows: Ontario, 645; Quebec, 203; British Columbia, 66; Nova Scotia, 35; Manitoba, 32; Alberta, 27; New Brunswick, 24; Saskatchewan, 10, and Prince Edward Island, 4. Blast furnaces are located at Sydney, N. S.; Hamilton, Port Colborne, Sault Ste. Marie and Midland, Ont. In addition to these, there are idle blast furnaces standing at Port Arthur, Parry Sound and Deseronto, which have not been in operation for several years. The Canadian Steel Corporation has two blast furnaces and a steel plant under construction at Ojibway, near Windsor, Ont. The principal steel plants of Canada are located at Sydney, N. S.; Hamilton and Sault Ste. Marie, Ont. In 1922 75,434 wage-earners were employed in the steel industry of this country; the amount of capital employed was $526,109,953.

Following the close of the Great War, the iron and steel industry of Canada has been waging an uphill fight to keep its head above water. In addition to the general depression in the markets of the world, the Canadian industry had to contend with steadily decreasing tariff protection, with the result that the number of plants engaged in this industry have been steadily decreasing for the past three or four years. Reliable reports indicate that 30 plants engaged in the iron and steel industry failed in the year 1921; 77 in 1922; and 83 in 1923. While figures for 1924 are not available at the moment, it is estimated that the number of firms to cease operation during the past twelvemonth will equal if not exceed those which closed down during the previous year.

Marked Decline in 1924

The monthly reports of the Dominion Government indicate that in 1923 the iron and steel industry experienced a partial recovery from the depression of the two previous years, but that a marked decline took place at the beginning of 1924, followed by an upward trend during the first quarter, when a further decline took place, following the announcement of the Robb budget with its drastic tariff reductions on April 11, and this decline kept growing in volume until the end of August. On the first of October, a slight improvement was reported but up to the present the volume of activity in the industry has at no time approached the high point of 1923.

Many Workers Idle

Data on the comparative number of workers engaged in the iron and steel industry indicate that only 48 per cent of the normal working force is employed at the present time. Presenting the antithesis of this, there exists in this particular branch of Canadian industry unemployment to the extent of 52 per cent of workers who could be given employment under normal conditions. The returns show iron and steel plants to be working only 74.4 per cent of normal or full time, with the 48 per cent of working force referred to above. This in effect means that workers now employed are, on an average, losing 25.6 per cent of their working time and the corresponding earnings, due to short time operations, which in itself adds appreciably to the extent of actual existing unemployment. A majority of firms engaged in this industry are operating on reduced schedules, in many cases at a loss merely as an alternative to closing down and adding further to the volume of unemployment. Data as to the additional number of workers who could be engaged, if conditions should warrant an immediate return to normal operations, indicate that on a very conservative estimate 51,000 additional workers could be given employment. As a consequence of the unemployment situation in this country brought about by depression in industry chiefly resulting from the lack of adequate tariff protection, it is estimated that upward of 400,000 workers from this country emigrated to the United States during the past four years to seek employment in the protected industries of that country. While the loss of Canadian workmen through emigration during the years 1921, 1922 and 1923 was a serious blow to this country's population, the number of workmen who left this country in 1924, following the depression caused by the Robb tariff changes, was considerably greater than for any corresponding period during the past four years, being estimated at between 13,000 and 14,000 per month.

Why the Canadian Iron and Steel Industry Is Depressed

Why does the iron and steel industry of Canada languish? This is a question of importance, and the Toronto representative of THE IRON AGE *was requested to make an investigation and report, especially as to whether the frequent reductions in tariff rates had had any effect on the prosperity of the industries in the Dominion.*

Mr. Sanderson's investigations and report show that the tariff, or rather lack of it, has had a very important effect not only in reducing production but in causing many workmen to leave Canada for the United States, where employment conditions have been more satisfactory. One of the interesting effects of the tariff policy of the Canadian Government is shown in developments following the putting of pig iron on the free list. Canadian iron and steel industry is experiencing severe competition from many directions. The action of the Government in connection with its budget for 1925 *is awaited with interest.*

While it is recognized that the depression in the iron and steel industry is not entirely attributable to lack of tariff protection, it is certain that conditions now existing definitely reflect the adverse influence of tariff reductions made effective early last year, and point clearly to the conclusion that proper and adequate protection would contribute largely to a revival of business and a renewal of productive activity. Complete information as to the number of plants closed down as a result of tariff reductions would require considerable time and investigation to secure. It is reported, however, that nine plants have closed down as a direct result of the tariff reductions and in other cases these reductions contributed largely to discontinuance of operations. The gas tractor industry might be cited as an illustration of inadequate tariff protection. Considerable investment was made in former years in plant and equipment for the manufacture of gas tractors. The tariff on these was removed during the war period and was never restored in spite of promises that this would be done. Foreign competition on a free basis forced the closing down of Canadian plants, or their diversion to other lines, and the great volume of the Canadian tractor business has gone to the United States.

Production Reduced

The marked diminution in volume of productive activity in the iron and steel industry during the year 1924, as compared with the improvement evident in 1923, is clearly evidence that the tariff reduction made effective last April has adversely affected the industry, particularly so in the farm implement and machinery group, and in the large group of "feeder" enterprises which supply the larger specialized plants with metal products and are dependent upon the latter for a considerable portion of their business. As affecting the agricultural implement industry, the tariff changes which came into effect April 11, 1924, are as follows:

	Preferential Tariff		General Tariff	
	Old Rate	New Rate	Old Rate	New Rate
Mowing machines, harvesters, binders and reapers	7½	Free	10	6
Cultivators, harrows, horse rakes, seed drills, manure spreaders, weeders	10	Free	12½	7½
Ploughs, threshing machines and complete parts thereof	10	5	15	10
Farm or field rollers, post hole diggers, hay loaders, stumping machines, grain crushers, potato diggers, hay tedders, and other agricultural implements	10	5	15	10
Farm wagons	10	5	17½	10
Fertilizers	5	Free	10	Free
Axes, scythes, sickles, or reaping hooks, hay or straw knives, edging knives, hoes, rakes and pronged forks	15	10	22½	20
Shovels and spades	20	10	32½	20
Spraying machines, fruit or vegetable, grading machines, pruning hooks, pruning shears	10	5	15	10
Milking machines, centrifugal machines for testing butter fat, milk of cream	10	5	15	10

Not only has the volume of business in the agricultural implement manufacturing industry been definitely curtailed as a result of these tariff reductions, but prospects for improvement have been seriously affected by reason of the widespread uncertainty and lack of confidence which the possibility of further reductions has engendered in the minds of financial men, individual investors and manufacturers generally regarding the stability of factors which control industrial operations. Industry in the United States has been directly aided by an adequate protective tariff in its development to a point where quantity production at low unit cost is possible. The same condition exists in England, together with lower labor costs and our British preferential tariff encourages greater competition from that source, and in other foreign countries depreciated currency values, low labor costs and most favored nation treatment combine to make them increasingly formidable competitors of Canadian manufacturers, not only in export markets of the world but also in the Canadian home market. These conditions obviously place Canadian manufacturers at a disadvantage. Industrial operations necessitate heavy investment in plant and equipment and with an already restricted and rapidly decreasing market both at home and abroad due to the stimulation of foreign competition through reduced tariff, their volume of production is limited, resulting in but meager return upon investment, with an increasingly high overhead and operating expense and cost.

Effects on Farm Machinery

The production of farm machinery by Canadian manufacturers has been reduced fully 50 per cent in 1924, partly owing to the tariff and partly to general conditions. While the production of farm implements in Canada has shown a decided decline in the past year, importing of this class of machinery, especially from the United States, has increased appreciably. Although statistics and records are not available to show the actual increase in dollars and cents, it would be found, if statistics were obtainable showing the amount of machinery purchased, that Canadian imports are decidedly greater since the reduction of the tariff than in years previous to these cuts, this increased business being almost entirely built up at the expense of the Canadian manufacturer. In order to offset the handicap resulting from reduced tariff and to meet foreign competition, Canadian agricultural implement manufacturers found it necessary to make a number of reductions in their price lists. The catalog prices for 1925 issued by leading Canadian agricultural implement firms serving Western Canada show substantial reductions as follows: On binders, $10; mowers, $4; drills, $10; tractor plows, $25; farm wagons, $8.50; disk plows, $9.50; gang plows, $4, and hay racks, $2.

Effects of Putting Pig Iron on Free List

In order to offset in some measure the cutting of the tariff on farm implements, the Canadian Government made pig iron duty free when entering this country for use in the manufacture of agricultural implements. While this concession to the implement manufacturers enabled these firms to produce at a lower cost than previously, it had a telling effect on the pig iron industry of Canada, for thousands of tons of iron, which was formerly purchased from Canadian blast furnace operators, went to their competitors in the United States. According to statements recently issued by blast furnace representatives in Ontario, they can hardly sell a ton of pig iron to implement manufacturers under existing conditions, where they sold thousands of tons previous to the dropping of the duty on this commodity. The high overhead and the duty on raw material used in the manufacture of pig iron in this country make it impossible to compete with Buffalo iron, especially when freight charges from Buffalo are but little different from those from Hamilton to Toronto. Canadian implement manufacturers can purchase pig iron in Buffalo at $23.50 per ton, as compared with a price of $28.80, Toronto, for No. 1 (2.25 to 2.75 silicon), quoted by Canadian blast furnace operators. As a consequence of Buffalo competition in the Canadian market, together with the general depression of trade in the country, chiefly resulting from the low tariff now in existence, the production of pig iron took a decided drop in 1924 as compared with that of the previous year, and it will be noted in the following table that almost immediately after the announcement of the tariff reductions in the Robb budget last April, the decline in the output of pig iron in this country became most acute. The total production of pig iron in Canada by months in 1923 and 1924 is as follows:

Month	1923	1924
	Gross Tons	
January	41,000	64,000
February	44,000	60,000
March	65,000	77,000
April	84,000	84,000
May	102,000	85,000
June	99,000	57,000
July	82,000	45,000
August	93,000	23,000
September	75,000	23,000
October	74,000	29,000
November	62,000	23,000
December	60,000	25,000
Total	881,000	595,000
Monthly average	73,000	50,000

As a result of the prevailing low tariff, the Canadian iron and steel industry is experiencing strong competition from European producers, not only in its export markets but also in the home market. Within the past few months, European interests have been making strong bids to secure a footing in this market. Especially is this the case with regard to Belgian concerns, whose production costs are considerably below those of Canadian mills and are able to undersell the latter in their own market. While this competition was little more than a matter of conjecture up to the first of last year, the closing months of 1924 saw it as an actuality with the imports of various commodities steadily increasing month by month. Since last June the large steel mills at Sault Ste. Marie, Ont., and Sydney, N. S., have been steadily curtailing production and from that time until the end of the year production at these plants ceased almost entirely. The company at Hamilton, Ont., fared somewhat better on account of its wide range of products and was able to keep its plant in operation about 60 per cent throughout the entire year. The following table on the production of steel ingots and castings by Canadian producers for the years 1923 and 1924 show the sudden decline in the output of these commodities following the tariff revision which was one of the chief factors in bringing about a general depression in the iron and steel industry of this country. The total output of steel ingots and castings in Canada by months for the two years is as follows:

Month	1923	1924
	Gross Tons	
January	48,000	41,000
February	46,000	71,000
March	89,000	95,000
April	93,000	104,000
May	104,000	108,000
June	96,000	69,000
July	74,000	52,000
August	105,000	23,000
September	66,000	18,000
October	67,000	20,000
November	55,000	23,000
December	41,000	24,000
Total	884,000	648,000
Monthly average	74,000	54,000

Premier Makes a Promise

Under existing conditions, iron and steel interests of this country are reluctant to extend the scope of their operations. Extensions and improvements to plants are being held up pending the announcement of the 1925 budget, and some steel interests of this country have gone so far as to say that unless some remedy is speedily forthcoming, their Canadian plants will be closed down entirely and they will take care of customers in this market from their plants in the United States. In a speech delivered in Toronto on Jan. 12, Hon. W. L. Mackenzie King, Prime Minister of Canada, stated that "for the time at least the Liberal Government is through with tariff reductions, and there will be no more tinkering with the existing schedule of customs charges until there has been an opportunity to see how the present arrangement works out." Despite the foregoing statement Canadian steel interests are not ready to announce future plans, but are waiting with interest to see what steps will be taken by the Government with regard to tariff changes when the budget for 1925 is brought down.

Figures of Hand Tools Produced

Seven hundred establishments in 1923 turned out hand tools of various descriptions aggregating $123,160,303, according to figures of the Census Bureau. These figures represent the output in each case of establishments engaged primarily in the manufacture of the specified classes of tools. They do not include the output of establishments engaged primarily in other work, but turning out definite and in some cases large quantities of these tools.

Wage earners to the number of 29,100 were employed. Their wages aggregated $37,168,834. Horsepower used was 75,446 and coal consumed 294,055 net tons.

PRODUCTION CURTAILED

Operations of British Empire Steel Corporation Limited Last Year—Outlook Encouraging

In spite of the fact that numerous changes and improvements were made to increase the efficiency of the iron and steel plants and organizations of the British Empire Steel Corporation during the past twelvemonth, the unsettled conditions of European currency, greatly reduced tariff protection, decline in general industrial activity and a brief wage controversy between miners and operators early in the year, had a general curtailing effect on the production, sales and employment, in the various plants of the corporation in Nova Scotia. From 1910 to 1914 the steel ingot production of companies in Nova Scotia averaged 400,000 tons, an output which rose to around 450,000 tons during the war years of 1915 to 1918. In 1923 production fell to 297,842 tons and in 1924 again declined to but 186,000 tons. The production of the British Empire Steel Corporation, plants at Sydney and Trenton, N. S., for the years 1923 and 1924, is as follows:

	1923, Tons	1924, Tons
Dominion Iron & Steel Plant		
Pig iron, for sale	69,832	45,339
Steel blooms and billets, for sale	10,786	12,970
Steel blooms for further mfgr.	72,433	32,789
Steel rails, standard	56,151	74,061
Steel rails, light	3,791	....
Wire rods	47,034	15,619
Steel bars, etc	4,580	3,788
Wire	14,863	7,346
Wire nails and staples	8,545	7,354
Wire fence	6,467	3,749
Sulphate ammonia	7,050	4,775
Benzol, etc., gals	1,046,629	454,834
Nova Scotia Steel & Coal Co. Plant		
Steel bars, angles, channels	34,072	23,914
Steel plates	3,350	1,384
Steel rails, light	2,564	339
Steel fish plates and splice bars	4,076	5,961
Steel shafting	124	32
Steel axles	11,440	6,844
Steel miscellaneous forgings	334	470
Steel bolts, nuts and rivets	2,659	1,550
Steel spikes	4,611	1,994

In June the demand for iron and steel products began to fall off, and the plants at Sydney and Trenton were compelled to close down early in August. From August to December operations were limited entirely to a small amount of business, advantage being taken to secure business in any market available. Export business, greatly assisted by the British preferential tariff, developed in New Zealand and absorbed a considerable portion of the rods, bars and wire products produced by the plants. Iron ore output and shipments were well maintained, due to the sale of ore in foreign markets. With the evacuation of the Ruhr by France contracts aggregating 800,000 tons of ore were closed, steady employment thereby being assured, during the shipping season for a large staff of miners at Wabana, Newfoundland. Owing to the geographical situation of Newfoundland the transportation of ore was confined to the periods from April to early in December, forty steamers with an average capacity of 8000 tons being employed in this trade. During 1924, 655,118 tons of ore was mined as compared with 748,387 in 1923. Comparative shipments were as follows:

	1923	1924
Wabana ore (exported)	301,085	521,580
Iron and steel products	262,541	184,499

Increased Activity

A marked increase in the operations of the British Empire Steel Corporation, with consequent better employment conditions, is forecast by an official statement that three 50-ton open-hearth furnaces were lighted Jan. 16, with steel to be produced about Jan. 20. By Feb. 9 it is estimated there will be enough steel on hand to enable the blooming mill to resume operations on single turn, on the same date the billet mill will resume on single turn. The drawing and galvanizing departments of the wire and nail mills at Sydney, N. S., are operating on double turn and the rod and bar mills and barbed wire, nail and staple departments are operating on single turn.

Slight Gain in Iron and Steel Exports

December Better Than November, But Year Shows Decline of 10 Per Cent from 1923—Imports Highest in 18 Months

WASHINGTON, Jan. 27.—Exports of iron and steel in December, 1924, aggregating 128,865 gross tons, showed a slight increase over those of November, amounting to 123,577 tons, but for the year 1924, exports totaled only 1,792,421 tons, against 1,992,595 tons in 1923.

Imports in December of last year showed a heavy increase to 69,281 tons, as against only 35,707 tons in November; but reversing the situation as to imports for the year, 1924 incoming shipments of iron and steel dropped to 556,637 tons, compared with 734,599 tons for the previous year.

In December the greatest item of export was steel rails, the total being 23,198 tons, while boiler tubes and welded pipe comprised the greatest items of export for the year, with a total of 213,514 tons, steel rails ranking second with a total of 208,829 tons. Among items showing increases in exports for the year 1924 compared with 1923 were pig iron, scrap, black steel sheets, tin plate, boiler tubes and welded pipe, barbed wire and steel castings. Decreases were shown in exports for the year, compared with the previous year, of semi-finished material, wire rods, iron and steel bars, plates, black iron sheets, plain and fabricated structural material, steel rails, plain wire and wire nails.

Sharp decreases in December, compared with December of 1923, occurred in exports of steel bars, which fell from 11,000 tons to 5942 tons; wire rods, from 6490 tons to 1715 tons; black steel sheets, from 36,642 tons to 7592 tons; plain wire, from 7261 tons to 1597 tons, and wire nails, from 6490 tons to 861 tons. Tin plate showed a heavy drop, also, from 17,609 tons to 12,566 tons.

Increases in imports in December were due principally to heavier incoming shipments of pig iron, ferromanganese, scrap, rails and structural shapes. Pig iron imports amounted to 28,143 tons, compared with 9880 tons in November. But for the year 1924 im-

Exports by Months, July, 1923, to December, 1924

(In Gross Tons)

	All Iron and Steel	Pig Iron	Semi-Finished Material
*Average, 1912 to 1914	2,406,218	221,582	145,720
*Average, 1915 to 1918	5,295,333	438,462	1,468,026
Calendar year 1919	4,239,837	309,682	258,907
Fiscal year 1920	4,212,732	248,126	288,766
Calendar year 1920	4,961,851	217,958	216,873
Fiscal year 1921	4,168,619	129,541	82,549
Calendar year 1921	2,213,042	28,305	10,363
Fiscal year 1922	1,721,418	28,330	63,127
Calendar year 1922	1,986,297	30,922	107,201
Fiscal year 1923	1,816,329	31,891	137,757
July	168,558	2,966	8,357
August	161,426	3,117	11,232
September	172,499	2,148	12,610
October	152,511	3,294	13,442
November	186,956	3,198	16,347
December	177,844	2,750	11,073
Calendar year 1923	1,992,595	32,318	152,748
January, 1924	247,942	3,812	8,594
February	164,820	4,773	11,463
March	123,618	4,047	2,278
April	131,276	4,117	8,275
May	154,136	4,317	4,895
June	163,770	2,057	11,178
Fiscal year 1924	2,009,343	40,596	119,744
July	137,481	1,796	10,363
August	134,628	4,365	6,127
September	135,979	4,799	15,473
October	157,071	3,373	15,569
November	123,577	1,478	8,649
December	128,865	2,549	7,081
Calendar year 1924	1,792,421	41,478	114,417

*Calendar years.

Imports of Iron and Steel in Gross Tons

(Monthly Averages)

	Total Imports	Pig Iron	Ferro-alloys	Manganese Ore and Oxide*
1909 to 1913, incl	26,505	†14,132	....	....
1914 to 1918, incl	23,351	4,645	3,281	‡47,155
1919 to 1921, incl	23,901	5,708	3,710	37,115
1922	59,545	31,954	9,117	31,204
January, 1923	120,078	83,935	5,120	829
February	67,704	35,793	9,234	4,636
March	106,197	72,344	9,030	12,799
April	77,903	36,371	7,221	14,071
May	75,883	39,764	10,482	12,734
June	68,019	30,033	12,794	36,138
Six months' average	85,964	49,706	8,980	13,535
July	53,464	19,760	12,381	23,824
August	45,439	14,564	7,334	23,026
September	36,611	8,353	9,744	35,175
October	29,882	9,349	9,372	16,842
November	26,364	9,299	5,073	14,790
December	27,009	12,355	2,307	12,003
Twelve months' average	61,217	30,652	8,343	17,171
January, 1924	26,675	10,587	3,033	23,081
February	42,269	15,482	4,847	4,430
March	39,278	16,919	3,941	46,067
April	50,969	17,171	7,371	29,729
May	66,801	25,220	5,501	31,993
June	60,569	28,697	2,347	24,726
Fiscal year average	42,115	15,643	6,105	23,807
July	30,410	13,511	1,435	12,287
August	44,928	16,189	1,120	16,160
September	45,214	16,347	3,578	6,269
October	49,873	10,963	8,608	12,088
November	35,707	9,880	7,596	19,919
December	69,281	28,143	10,530	....
Twelve months' average	46,370	17,426	4,992	21,672

*Not included in "total imports"; since Sept. 21, 1922, these figures are for manganese contents of the ore.
†Includes ferroalloys.
‡Average for three years, 1916 to 1918 only.

Exports of Iron and Steel

(In Gross Tons)

	December		Twelve Months Ended December	
	1924	1923	1924	1923
Pig iron	2,549	2,750	41,478	32,318
Ferromanganese	....	2	3,165	4,295
Ferrosilicon	10	....	775	714
Scrap	5,771	5,111	97,447	65,678
Ingots, blooms, billets, sheet bar, skelp	5,366	4,583	95,657	111,881
Wire rods	1,715	6,490	18,760	40,867
Iron bars	215	343	5,055	12,660
Steel bars	5,942	11,000	98,380	158,315
Alloy steel bars	186	50	2,743	2,148
Plates, iron and steel	5,266	7,034	85,543	115,459
Sheets, galvanized	8,166	7,376	108,148	114,748
Sheets, black steel	7,592	36,642	148,742	139,103
Sheets, black iron	1,026	640	11,003	14,157
Hoops, bands, strip steel	2,988	1,935	34,141	38,240
Tin plate, terne plate, etc.	12,566	17,609	160,994	124,452
Structural shapes, plain material	7,586	6,078	102,408	122,066
Structural material, fabricated	4,701	3,657	70,784	78,529
Steel rails	23,198	21,565	208,829	267,409
Rail fastenings, switches, frogs, etc.	2,090	3,279	36,112	39,586
Boiler tubes, welded pipe and fittings	15,936	15,400	213,514	193,640
Cast iron pipe and fittings	1,631	1,832	29,051	28,057
Plain wire	1,597	7,261	37,052	92,231
Barbed wire and woven wire fencing	6,557	5,711	90,443	74,843
Wire cloth and screening	75	137	1,628	1,962
Wire rope	252	422	4,186	6,257
Wire nails	861	6,490	21,664	45,979
All other nails and tacks	854	629	7,886	8,758
Horseshoes	44	89	963	951
Bolts, nuts, rivets and washers, except track	1,146	1,402	17,493	18,905
Car wheels and axles	1,755	973	22,329	20,591
Iron castings	594	827	8,456	10,044
Steel castings	427	321	5,876	4,734
Forgings	203	196	1,716	3,018
Total	128,865	177,844	1,792,421	1,992,595

ports of pig iron declined to 209,109 tons as against 367,820 tons in 1923. Ferromanganese imports last year also dropped sharply, amounting to 47,922 tons compared with 88,570 tons in the previous year. The most striking increase in imports last year was in tubular products, with a total of 54,469 tons compared with only 4960 tons in 1923. This heavy tonnage was mainly in cast iron pipe.

Because there seems to have been a misunderstanding in a portion of the trade regarding imports of manganese ore and ferromanganese, notation has been specifically made in the accompanying table showing that

Imports of Iron and Steel Into the United States

(In Gross Tons)

	December		Twelve Months Ended December	
	1924	1923	1924	1923
Pig iron	28,143	12,355	209,109	367,820
Ferromanganese*	8,648	1,907	47,922	88,570
Ferrosilicon†	1,882	400	11,988	11,550
Scrap	13,212	4,500	66,841	162,026
Steel ingots, blooms, billets, slabs and steel bars	2,628	2,300	39,021	22,667
Wire rods	612	337	6,849	3,948
Rails and splice bars	3,758	935	43,357	29,705
Structural shapes	5,992	1,627	43,244	10,679
Boiler and other plates	22	106	3,276	1,820
Sheets and saw plates	336	264	2,758	2,732
Bar iron	247	393	4,354	7,760
Tubular products	3,007	800	54,469	4,960
Castings and forgings	191	246	2,849	2,703
Nails and screws	22	78	351	1,093
Tinplate	31	186	1,036	10,032
Bolts, nuts, rivets and washers	11	14	164	216
Round iron and steel wire	158	278	3,277	3,889
Flat wire and strip steel	117	266	2,088	1,480
Wire rope and insulated wire, all kinds	264	17	13,654	956
Total	69,281	27,009	556,637	734,599
Manganese ore*	18,522	12,003	255,157	206,048
Iron ore	185,571	157,190	2,047,055	2,768,430
Magnesite	913	9,169	62,861	76,815

*Manganese content only, except that 2650 tons of manganese ore in December, 1924, and 23,043 tons in all of 1924 came in free from Cuba; these free importations were reported by total weight and not by dutiable content only.
†Silicon content only.

the tonnages quoted include manganese content only. Also in the case of ferrosilicon, only the silicon content is covered in the import tonnage. This has been the situation since the Fordney-McCumber tariff went into effect on Sept. 22, 1922, which, as pointed out in THE IRON AGE of March 8, 1923, imposes duty only on manganese and silicon content.

Railroad Expenditures in England

WASHINGTON, Jan. 27.—The London North Eastern Railroad has provided for the construction of locomotives and passenger and freight cars and for improvements calling for the expenditure of not less than £6,000,000, according to a report received by the Department of Commerce. About £1,000,000 is to be devoted to the construction of 221 freight and 74 passenger locomotives. The program also includes 11,700 freight cars, to cost £2,300,000, consisting of 200 3-ton cars, 1400 covered cars and 4000 coal cars of from 12 to 20 tons capacity. More than 2000 of these have been ordered from car builders. Renewal of lines on the 7000 miles of road will account for £1,250,000, while £150,000 will be expended on work of cleaning and painting stations.

In a report Assistant Chief Examiner Charles F. Gerry of the Interstate Commerce Commission holds that the rate of $2.60 per net ton on iron soil pipe from Somerville, N. J., to points on Long Island, N. Y., is not unreasonable or otherwise unlawful and recommends dismissal of the complaint against the rate, made by the Somerville Iron Works, Somerville.

The 12 new tin plate mills being erected at Sparrow's Point, Md., by the Bethlehem Steel Co. are rapidly being completed and six of them are now in operation.

Pittsburgh Steel Products Co. to Add Mill for Making Large Tubes

About a third of the proceeds of a bond issue of $3,000,000 recently made by the Pittsburgh Steel Products Co., Union Trust Building, Pittsburgh, will be expended in an extension to the company's plant at Allenport, Pa. A 3-bay mill building approximately 1000 ft. long by 140 ft. wide is to be erected to house a new seamless tube mill capable of rolling seamless tubes over 6 in. up to 12 in. in diameter. This mill will have a monthly producing capacity of 5000 tons of tubes of the larger sizes, which are finding increasing use in the oil fields for casing and drill pipe. It will bring the company's total capacity to 16,000 tons a month, the largest of any company in this country. The company with the addition of the new unit will be able to supply seamless tubes all the way from ⅛ in. to 12 in. in diameter.

Contract for the mill already has been let to the builder holding American rights to the Peters patents. Steel for the new building will be let shortly and bids have been asked for the other equipment, which includes 10 cranes, two of which are of 100-ft. span and another of 115-ft. span.

Meeting of Quad City Foundrymen

The Quad City Foundrymen's Association held its first meeting of 1925 at the Rock Island Club, Rock Island, Ill., Jan. 19. The first speaker of the evening was G. A. Richardson, Bethlehem Steel Co., who explained the use of Mayari iron for special kinds of iron mixtures where exceedingly close grain structure and increased tensile strength are necessary. The second address of the evening was by E. J. Lowry, metallurgist Hickman, Williams & Co., whose subject was "Factors in the Quality of Gray Iron." He explained the properties of various constituents in cast iron, including the good and the bad, and the effect of the properties upon each other. He discussed at length the effect of carbon on the strength, machinability and soundness of gray iron. By way of illustration he presented lantern slides covering a large range of various analyses and showing results of 1500 tests and experiments.

Meetings of Mechanical Engineers

Among meetings scheduled by sections of the American Society of Mechanical Engineers are the following:

Birmingham, Feb. 17. General topic: Gas Cleaning. Blast Furnace Gas, by Sam Stewart, Republic Iron & Steel Co. By-Product Gas, by Frank W. Miller, Sloss-Sheffield Steel & Iron Co.

Cincinnati, Feb. 26. At Literary Club Rooms, 8 p. m. Report of the Standardization of Machine Tools by a special committee consisting of S. Einstein, R. T. Hazelton and W. E. Groene.

Cleveland, Feb. 2. At Hotel Winton, 8 p. m. Measurement of Machinability of Metals, by J. V. Emmons, metallurgist Cleveland Twist Drill Co.

Colorado, Feb. 27. At the Metropole Hotel, Denver. Shop and Production Methods in the Burlington Shops of Denver, by Charles Irwin, superintendent of western division, C., B. & Q.

Lehigh Valley, Feb. 13. Use and Abuse of Cutting Tools in Machine Shop Practice. Speakers: Ralph Flanders, manager Jones & Lamson Machine Co., Springfield, Vt., and J. J. Coffey, superintendent tool manufacturing division, Bethlehem Steel Co.

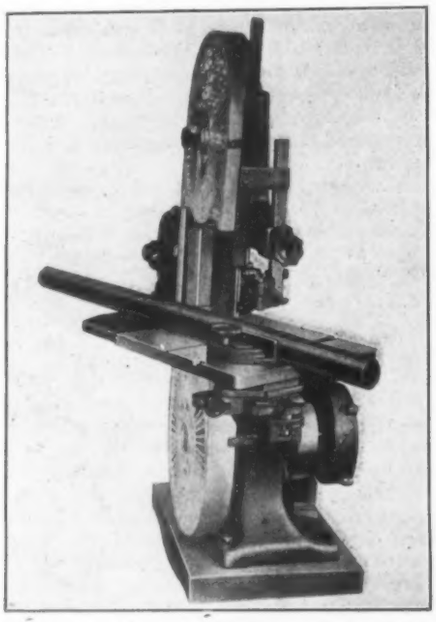
Toledo, Feb. 19. At Toledo Chamber of Commerce. Stereopticon lecture on automatic stokers of various types. Speaker, L. R. Stowe of the Stowe Stoker Co.

New York State uses more electric power and lighting than is used in any entire nation outside the United States. About 20 per cent of the New York consumption is imported from Canadian plants at Niagara, the remainder being produced almost wholly within the State, partly by water power, but more largely by steam. The output of all central stations for light, power and railroad service is included.

Band Saw with Swiveling Table and Guides

Provision for swiveling the table and saw guides so that the blade may be directed to various angles, permitting the cutting of long stock, is a feature of the band saw illustrated, which is a new model of the duplex band saws of the Racine Tool & Machine Co., Racine, Wis.

The adaptability of the machine for cutting long boards, pipe, bar stock or other material and the minute adjustability of the blade to compensate for faulty



Swiveling Table and Saw Guides Permit Long Lengths of Stock to Be Cut. The blade can be adjusted to compensate for faulty brazing

brazing or inaccuracies in filing or setting are emphasized as improvements over the straight band saw. By directing the blade slightly to the right or left by means of the swivel guide provided, it is claimed that crawling can be overcome and a straight cut produced.

A roller guide is mounted on the table column immediately below the cutting point, the table and lower guide being integral and swiveling together. The upper guide, which is mounted on the usual guide post, may be swiveled about the blade as a center. The blade is supported immediately above and below the work, a straight cutting edge being presented to the material, regardless of the twist given to the blade. The swivel guides are made up of two small hardened rollers, accurately ground and containing ball bearings, which serve to support the blade on either side. A larger roller also hardened and ground and mounted in a ball bearing supports the blade at the rear and takes the feeding pressure. Adjustments for horizontal alinement of the guide are provided, as well as adjustments for width and thickness of blade. The various adjustments are by means of thumb screws and hand wheels, the use of wrenches being unnecessary.

The duplex or change feed feature of the machine is intended to provide suitable cutting speeds for a variety of materials and shapes and with the proper blade.

Steel Barrels Produced in 1924

Except for January, the number of steel barrels produced month by month in 1924 was fairly uniform, with a maximum of 447,900 in October and a minimum of 370,966 in February. The January figure was only 307,189, according to the Department of Commerce. The December total of 413,785 brought the aggregate for the year up to 4,725,604, or an average of 393,800 per month.

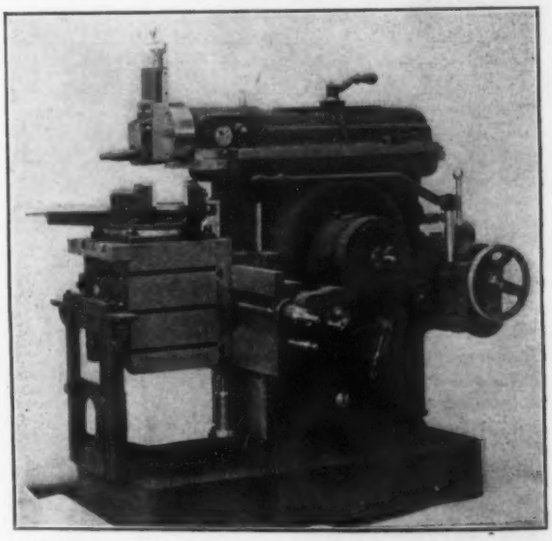
Shipments were close to production all through the year, there being no month in which the difference between the two was as much as 2 per cent. Stocks on hand included 45,588 on Jan. 1 and 53,265 on Dec. 31. The unfilled orders at the end of the year amounted to 1,586,034, or approximately four months' production at current rates. This was by far the largest figure for the year, there having been a heavy advance from the 682,533 on order at the end of October.

Heavy-Duty 16-In. Crank Shaper

A 16-in. heavy-duty back-geared shaper equipped with single-pulley drive and intended for tool room and die work has been added to the line of the Stockbridge Shaper Co., Worcester, Mass.

The gear box is of the same design as used in the company's larger machines, having selective sliding gears with automobile shift. It has high ratio gearing providing ample power for heavy roughing cuts. Eight speed changes are available, four by means of the shift lever and doubled by the back gears. The gears are of steel, heat treated, and may be run in oil or light grease. The teeth are pointed to facilitate shifting.

The driving clutch is of automobile type and serves to stop the machine, which when stopped is locked against the possibility of starting up. The clutch is operated by the horizontal lever which is extended to the front of the machine, as shown, the ram being moved back and forth for positioning by the same lever. The ram may be set also by means of the hand wheel at the side of the machine. For belt drive a 14-in. pulley having a face for a 3½-in. belt is used and a cast iron cover completely guards the pulley. The base is unusually deep and carries a table support



Back-Geared Shaper with Single Pulley Drive for Tool-Room and Die Work

for the knee, the table support giving a full width knee when in any position on the bar.

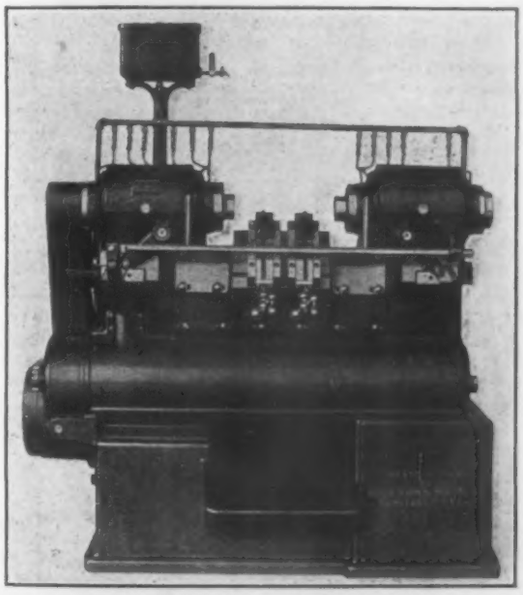
The saddle is fed in either direction by the cross feed by simply throwing a handle to the right or left. Changing of position of the feed rod is unnecessary and the machine does not have to be stopped to reverse the feed. The feed operates on the return of the ram and does not feed on the cut, which is emphasized as eliminating danger of breakage from this cause. Driving parts are heavy and are strongly ribbed to withstand strain with the shaper operating at double its rated power. The vise is designed to eliminate overhang of the front jaw, and is arranged to keep the work as close as possible to the top of the table. The body of the vise is 4½ in. from the top of the table. The vise jaws are 2½ x 12 in., and the vise opens 12 in. Automatic down feed can be furnished.

On 1924 inbound shipments into the Youngstown district, comprising raw materials chiefly, the Youngstown Sheet & Tube Co. paid freight charges to the railroads aggregating $7,832,684.

BUSHING TURNING LATHE

Automatic Operation of Chucks Permits Placing and Removal of Work Without Stopping Spindles

The Rockford Tool Co., Rockford, Ill., is offering the Sundstrand double-spindle semi-automatic bushing turning lathe illustrated herewith, which is a high-production machine intended for turning brass, bronze, aluminum and other non-ferrous materials requiring high spindle speeds. It is adapted to the machining of parts that can be held by an expanding spring chuck



High Production Lathe for Turning Brass, Bronze and Other Metals. The work is held in an expanding spring chuck or spring collet, the action of which is automatic

or spring collet. The capacity is for work up to 6 in. in diameter and 3 in. long.

An outstanding feature is the automatic opening and closing of the spring chucks, permitting work to be put on or removed without stopping the spindles, the productive capacity of the machine being thereby largely limited to the speed of loading and unloading the work. Operation is also facilitated by the convenient location of control levers, and by placing the spindle toward the front of the machine for convenience in putting on and removing the work.

The base is a one-piece ribbed casting and the bearing surfaces for the two headstocks are wide. The carriage is long and covers the entire length of carriage ways, which prevents the entrance of grit and chips under the bearing ways. The lower section of the base serves as a compartment for chips and the motor switch box. An accessible cleanout for chips is located at the front of the machine and a door at the front permits of easy access to the motor switch box. The rear of the base serves as a compartment for the double-pulley spindle driving motor, which is mounted on the floor of the base and protected from chips by a screen housing. The screen permits of adequate ventilation. A 5-hp. 1150-r.p.m. motor is employed.

The drive from the double-pulley motor is by belt to each of the two lathe spindles. The left spindle is belted to the gear box below and from the gear box to the cammed drum. Loose change gears provide wide range of feeds. A single-end motor and special ball-bearing countershaft may be furnished to reduce the spindle speed for machining of parts requiring slower turning speed than desirable with brass and similar materials.

The length of stroke and travel of the carriage or tool holder slides is governed by the nature of the part to be machined. The carriage travels from one spindle to the other at various feeds obtained by arranging cams on the feed cam drum, which is located under the carriage. The cams may be arranged for a coarse feed across a bushing for roughing and a fine feed for finishing on the return stroke, then for rapid travel to the other spindle and complete a bushing, or repeat the cycle while the other spindle is being loaded. The carriage is 26½ in. long. Two tool holder slides on the carriage are provided with in and out adjustment to the tools, by means of a screw and micrometer dial on each end.

The spindles are of high-carbon steel, ground and lapped and fitted in taper phosphor-bronze bearings. Adjustment for wear is by means of a single nut at the rear of each spindle. Lubrication is provided from an oil reservoir above the left-hand spindle, the oil being piped to all bearings. Individual sight gage and shut-off is provided for each pipe line. The height from the floor to the center of the spindles is 43 in. The floor space occupied by the machine is 40 by 60 in. The net weight is 3735 lb.

Portable Combination Wood Worker

A portable wood worker equipped with a 2-hp. motor and jointer, and mounted on a pedestal base, as illustrated, has been added to the line of the Tannewitz Works, Grand Rapids, Mich. Ball bearings are used throughout.

The saw bench table is 30 x 36 in. long and 34½ in. from the floor when a truck is used. The largest saw accommodated is 15 in. in diameter, 12-in. saws being regularly furnished. A threaded sleeve is part of the equipment and permits the use of dado heads 3 in. wide. The ripping capacity is 17 in. wide. Two graduated miter gages with stop rods and stops are part of the regular equipment. A graduated segment on the hinge indicates the angle of the table which may be tilted up to 45 deg., the table being raised and lowered

Combination Wood Worker. Raising and lowering the truck handle lowers and elevates the machine, respectively

by the hand wheel on the front. Provision is made for locking the table.

A 6-in. jointer is mounted on the right hand side of the base and is provided with a hand wheel so that the jointer pulley can be brought into or out of contact with the main belt. The rear jointer table is 18 in. long; the front table is 14 in. long. The width is 8 in. The jointer knives are of high-speed steel and are 6 in. long. The 2-hp. driving motor is mounted on an adjustable bracket at the rear of the base and takes current from the power circuit. A three-wheel truck is mounted under the base as shown.

The by-product coke plant of the National Tube Co. at Benwood, Wheeling, W. Va., a Semet-Solvay installation, again is in production following a suspension of several months during which necessary repairs were made and conveying equipment was installed to take the coke to the blast furnaces. Previously the coke was conveyed in cars to the Riverside furnaces.

LABOR: EMPLOYMENT—EARNINGS—EFFICIENCY

1. Cost of living is rising, but the earnings of labor are rising faster. This is true both of industry in general and of the iron and steel industry.

2. The number employed and the percentage of full-time employment has steadily increased since July.

3. The output of iron and steel per man has recovered to about the average of recent years. Output per man-hour has not increased so much.

BY DR. LEWIS H. HANEY

Director, New York University Bureau of Business Research

Labor Earnings and Cost of Living

IN August, both the average weekly earnings of labor and the cost of living began an upturn which is still going on. At the end of the year all the curves shown in Fig 1, were moving upward. The curves of earnings, however, were advancing more sharply than cost of living, and the per capita earnings of labor in the iron and steel industry had increased to a greater extent than in industry in general. In that industry the increase was over 10 per cent in December.

The cost of living index is only about equal to the average for 1921. The earnings of labor, therefore, are relatively much higher, since they are approaching the 1923 peak. It follows that the spread between labor, earnings and cost of living has widened, and that the purchasing power of labor must be considerably larger than it was last summer.

It seems certain that retail prices and the cost of living will continue to advance for several months. With full-time operation increasing, the earnings of labor will also gain, and, judging by the past, earnings will rise more rapidly than cost of living.

Labor Employment

THE general trend of employment in industry is on the upgrade, but, as shown in Fig. 2, it is still much below the 1923 peak. In the iron and steel industry, employment shows wider swings than in the average of all industries.

(*Concluded on page* 357)

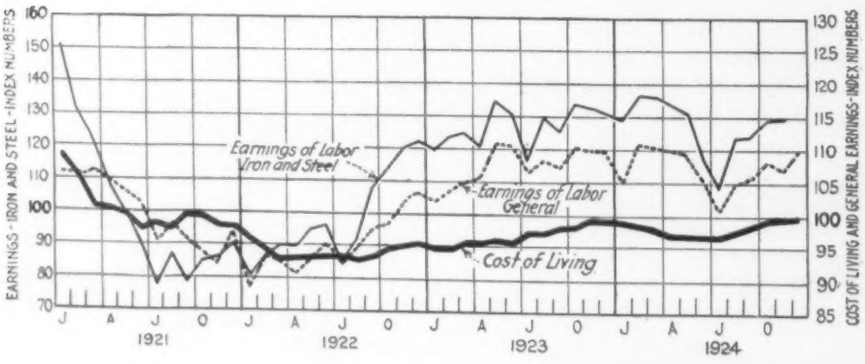


Fig. 1.—Trend of Labor Earnings and Cost of Living
The curves showing per capita earnings of labor are based on the United States Bureau of Labor Statistics reports. The cost of living index is that reported by the National Industrial Conference Board. All index numbers are based on the 1921 monthly average as 100

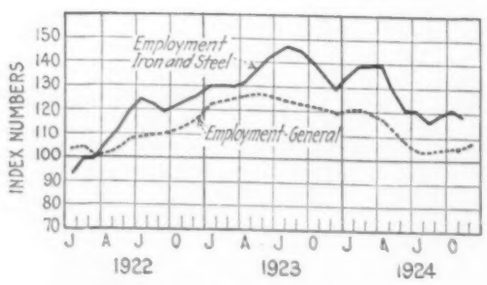


Fig. 2.—Trend of Labor Employment
Indexes based on United States Bureau of Labor Statistics report. They are adjusted for seasonal variation and consequentiy show the true trend from month to month

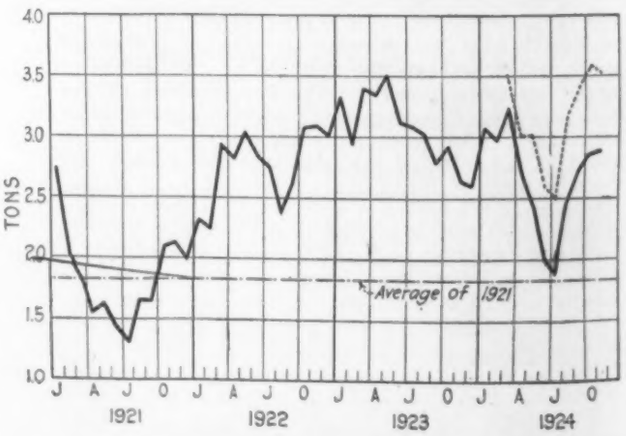


Fig. 3.—Trend of Labor Efficiency in Iron and Steel
Solid line represents the number of tons of iron and steel produced per month divided by the estimated number of men on the payroll of iron and steel companies. The dotted line indicates the general trend of the output per man-hour as distinguished from the output per man employed

In This Issue

So-called "world hunger" for steel over-rated. 1924 sixth consecutive year in which iron and steel exports of all countries have been under 1913. Total for year less than 13 million tons.—Page 331.

"All basic conditions are sound and point to prosperity for some time to come," says President Campbell of Youngstown Sheet & Tube Co.—Page 367.

Car loadings for week ended Jan. 10 *totaled* 932,807, *highest for any January week in history.—Page* 361.

World output of steel in 1924 three per cent under 1923; pig iron five per cent off.—Page 336.

Steel houses to be fabricated like ships. Scotch firm plans to build dwellings with walls of heavy steel plating, using girders for frame work. —Page 338.

Tariff reduction disastrously affects business of Canadian metal trades. Workers migrating to United States; failures common; production at low ebb.—Page 347.

Proposed change in Federal Trade Commission act would give business interests against which charges are made an opportunity to "cease and desist" without issuing formal complaint.—Page 336.

Belgium steadily becoming more prominent in iron and steel export market. Obtained more than one-quarter of aggregate world business in 1923.—Page 333.

Increase in production and decrease of labor went beyond fondest expectations when bolt and nut manufacturer installed adequate material-handling system.—Page 344.

Little cause for fear of foreign competition, says President Grace of Bethlehem. Lessening of currency exchange advantage a factor.—Page 339.

"If investors should refuse to put their money into loans or enterprises unsupported by independent engineering studies, they would reduce their worries."—Page 359.

Has some of the rail business booked by German manufacturers been taken at a loss?—Page 358.

Second only to 1923, the record year, 1924 automobile and motor truck output aggregated 3,600,000.—Page 339.

Less than half as many locomotives delivered by principal American manufacturers in 1924 as in 1923. Total last year 1465; 1923, 2985.—Page 346.

One two-hundredth of one per cent sulphur will destroy malleability of nickel. Manganese and magnesium necessary alloys.—Page 342.

American iron and steel export business still shrinking. Less than one-sixth of world total in 1924, as compared with two-fifths in 1920.—Page 333.

Fabricated structural steel capacity estimated 290,000 *tons per month, almost* 40 *per cent above* 1913.—*Page* 330.

Cost of maintaining industrial relations program slightly over one-half of one per cent of Colorado Fuel & Iron Co.'s gross business.—Page 328.

Conflict between trade unionism and employee representation must be dealt with before Rockefeller plan can be considered wholly successful, Sage Foundation reports.—Page 338.

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Iron and steel employment also showed a slight setback in November. In December, however, employment in the industry increased 5.7 per cent.

In November, on the average, employees worked 91 per cent of full time; in December 92 per cent.

Labor Efficiency in Iron and Steel

AT the end of 1924 the output of iron and steel per laborer employed in the industry had gained sharply in comparison with the low point reached in July of that year. At the end it was still tending upward. It has, however, already about reached the average of the last few years and it may be doubted whether further large gains will be made.

Attention is particularly called to the dotted line in Fig. 3, which shows the trend of the output of iron and steel per man-hour. Evidently, when figured on this basis, the efficiency of labor in the industry decreased somewhat in November. In other words, *while the production of iron and steel increased somewhat in proportion to the number of men employed, it did not increase in proportion to the gain in time worked.*

Over-Manned in Slack Times

In slack times in the iron and steel industry a larger number of men are carried on the payroll than are required for mere production, which fact results in sharp decreases in output per man. As the industry picks up, more full-time operation develops, and the output per man-hour does not rise so greatly as does the output per man.

WHERE IRON AND STEEL WENT

American Continent Took Two-Thirds and Far East One-Fourth of All the U. S. Shipped

WASHINGTON, Jan. 26.—Exports of iron and steel from the United States to other parts of the American continent during the first 11 months of 1924 constituted 65 per cent of the total, or by far the greatest amount sent to any region of the world, according to the Iron and Steel division, Department of Commerce. At the same time it is pointed out that sales to foreign markets on the American continent declined 2 per cent from the proportion made for the corresponding period of 1923. The division gives total exports of iron and steel for the 11 months ended with November, 1924, as 1,684,195 gross tons, against 1,828,012 tons for the corresponding period of 1923. Due to the fact that the division carries several small-tonnage items not carried in THE IRON AGE table, the division figures are somewhat higher than those of THE IRON AGE.

It is interesting to observe from the analysis of the division that exports to the Far East remained unchanged in percentage during the first 11 months of 1924 in comparison with the corresponding period of the previous year, the shipments being 25 per cent of both totals. But the Far East tonnage for the 1924 period declined to 433,070 tons against 457,801 tons during the 1923 period. In relative importance, the shrinkage in the Australian, Indian and Japanese markets was offset largely by heavier shipments to the Philippine Islands and China. Of the shipments to the Far Eastern region, Japan easily predominated, taking 15 per cent of the exports during the 1924 period as compared with 3 per cent each for China and the Philippines, and more than 1 per cent each to India and Ceylon, Australia and Kwantung.

Exports to Africa and Palestine increased somewhat in absolute weight for the first three quarters of 1924 as compared with the January to September period of 1923, although their share in the trade approximated 1 per cent for both periods. The bulk of these sales was to British Africa. Italy's great increase in purchases prevented a more serious slump in exports to Europe.

Canada, which was the largest individual foreign market for United States iron and steel in the 1923 period, maintained its commanding position in the 1924 period, although the proportion of its trade declined from 39 per cent to 31 per cent, more than accounting for all of the percentage drop in shipments to the American continent and for all of the tonnage drop in total shipments in the 11 months. Cuba held second place among the American markets, and third place in the world markets, taking 9 per cent of the total exports for both periods. Mexico, with 5 per cent, Brazil, with 4 per cent, Argentina, with 3 per cent, and Chile, Colombia and Peru, each with 2 per cent, stood next in importance for the first 11 months of 1924. Brazil, Mexico, Venezuela, Guatemala, Panama, and Colombia each showed a considerable gain over the share exported to them for the 1923 period.

Iron and Steel Exports from the United States for 11 Months of 1923 and 1924, with Percentage Taken by Each Country

Countries of Destination	11 Months, 1923 Gross Tons	*Percentage	11 Months, 1924 Gross Tons	*Percentage
Belgium	7,327	..	9,041	1
Denmark	1,335	..	553	..
France	6,851	..	2,551	..
Germany	1,516	..	1,142	..
Italy	3,008	..	19,073	1
Netherlands	4,866	..	3,179	..
Norway	3,912	..	3,136	..
Portugal	432	..	1,108	..
Spain	6,629	..	3,755	..
Sweden	1,748	..	679	..
Switzerland	1,488	..	247	..
United Kingdom	59,701	3	52,833	3
Total European	98,813	6	96,267	6
Argentina	51,132	3	52,101	3
Brazil	46,363	2	64,898	4
Canada	719,867	39	525,534	31
Chile	32,328	2	30,840	2
Colombia	26,645	2	36,020	2
Cuba	162,471	9	157,774	9
Dominican Republic	10,212	..	10,524	1
Guatemala	5,593	..	13,236	1
Honduras	15,402	1	7,225	..
Mexico	79,548	4	98,417	5
Panama	7,877	..	12,533	1
Peru	26,033	2	26,654	2
United States	.....	..	.....	..
Uruguay	8,898	..	4,435	..
Venezuela	14,345	1	22,278	1
British West Indies	10,512	..	6,880	..
Other America	15,125	1	20,015	1
Total America	1,232,351	67	1,090,364	65
British Africa	12,666	1	14,227	1
Egypt and Palestine	988	..	1,933	..
Portuguese Africa	957	..	919	..
Total Africa and Asia	14,611	1	17,079	1
Australia	38,505	2	20,548	1
China	45,251	2	55,697	3
Hongkong	9,603	..	10,963	1
India and Ceylon	23,228	2	21,859	1
Japan	285,161	16	254,998	15
Kwantung	18,030	1	17,196	1
New Zealand	3,438	..	2,959	..
Philippine Islands	31,511	2	47,001	3
Straits Settlements	3,074	..	1,849	..
Total Far East	457,801	25	433,070	25
All other countries	24,436	1	47,615	3
Total	1,828,012	100	1,684,195	100

*Countries taking less than 1 per cent are not shown in this column.

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Home Steel and Import Steel

IT is to be expected that sales of foreign steel for use in the United States will get more than usual newspaper attention now that every such transaction is being examined for the light it may throw on Germany's new power as a competitor. And this is so even though Belgian and French products rather than German have figured in the imports of the past few months. Following the purchase of Belgian rails by Henry Ford's Detroit, Toledo & Ironton Railroad, came a statement from the Interborough Rapid Transit Co., New York, that it has been negotiating with European makers for 5000 tons of steel rails for the subways, though no order has been placed as yet.

Another late development is the decision of the cabinet at Berlin to restore the 8-hour shift at German coke works and blast furnaces. Here is a promise of higher rather than lower German costs. Even now, however, there is the reported admission by German makers that on some of the rail orders they have taken in international competition their prices have been dollars per ton below their costs. And just as the securities of two German steel companies are being put on the American market, Havana newspapers are carrying advertisements offering German rails at prices which the advertisements say are $5 a ton below those of American mills.

Secretary Hoover may have had this competition in mind when he presented his department's needs to the House Appropriations Committee last week. In urging that unusual assistance through Government agencies be given to American export organizations in the coming year, he said that we are facing more severe competition from Europe than we have had in the past three or four years, and also cited the fact that our steel rail business has fallen off in neutral markets.

We may expect to see a good deal of generalizing from a few facts as the trend of things in the international steel trade comes under scrutiny in coming months. Thus far it does not appear that foreign steel will figure in any large way in this market. In the first eleven months of 1924 our imports of all forms of finished rolled steel were about 158,000 tons against roundly 100,000 tons in the corresponding period in 1923. As German industry is financed, there may be some increase of imports from that source; but we consumed about 26,000,000 tons of domestic finished steel products last year, and it would take nearly 100,000 tons on top of the total imports of 1924 to bring our consumption of foreign steel up to 1 per cent of the domestic output.

Cross-currents in international steel trade there have always been and no doubt always will be. Our rail mills shipped 17,312 tons of rails into Canada in eleven months of last year, and in the same period of 1923 no less than 61,445 tons, doubtless much of this tonnage being light rails. Yet Canadian rail mills never have been more in need of business than in the past two years.

On the other hand: Nearly ten years ago the Canadian rail mill at Sault Ste. Marie was an active seller on this side of the line. Our rail imports in 1915 were 78,500 tons, including 35,000 tons which the Illinois Central bought from the Soo mill at $27, Chicago, or $3 a ton below the price of the South Chicago rail mill.

And in that same year 1915 the Birmingham (England) Corporation, through its tramway committee placed 3000 tons of girder rails in this country. Glasgow also has been a patron of American rail makers, and when protests were made on the score of "patriotism," the reply was that the American mill could make better delivery than could be had at home. It may be said, however, that there were also indications that an advantage in price had not been ignored.

The point of these and of other citations that might be made from the records is that low prices have always been a factor in the shiftings of iron and steel trade across national borders. But such low prices have been sporadic and occasional. Proximity, service, quality, mutual interest, and a half dozen other important considerations make it certain that American railroads and all other American consumers of steel, in the future as in

the past, will depend on mills at home. Exceptions there will be, but the exceptions will be negligible except as they help to prove the rule.

World's Steel Output in 1924

THOSE who early in 1919 predicted a "world hunger" for steel which would flood producing countries with orders are still unhonored prophets. Six years after the war the world's needs, measured by the exports of six producing countries in 1924, are still much less than in 1913. The analysis on other pages shows a gain of only 4 per cent last year over the previous year. Slow, indeed, is recovery from the impoverishment caused by the war, seeing that twelve years ago the leading steel-making nations exported more steel than in any peace-time year since.

Notable features of last year's record were the rapid expansion of Belgian and French exports, the sluggishness of Britain's recovery and the indifferent showing of our own export trade. Fresh emphasis was given also to the influence of steel scrap as a factor in the industry. In the past two years between 6,000,000 and 7,000,000 tons more steel than pig iron was made, while in 1913 pig iron was preponderant. War scrap has gone into millions of tons of new product.

Statistics and estimates indicate a world production of about 61,250,000 tons of pig iron and 69,200,000 tons of steel in 1924. For 1913 77,000,000 tons of pig iron and 75,000,000 tons of steel were produced. From a 2,000,000-ton pig iron margin in the pre-war year, the large scale conversion of war and other scrap into peace-time metal has swung the balance to nearly 8,000,000 tons on the side of steel.

Cement and Steel

WHILE from 1923 to 1924 the production of pig iron decreased 22 per cent and the production of steel ingots 16 per cent, the production of Portland cement increased 8 per cent, and this despite the fact that 1923 had broken the previous record, made only in the preceding year, by 20 per cent.

The consumption of cement is a function of special circumstances, and the course of production has been very irregular. There was a continuous and rapid increase through the year 1913, then a decrease during the period of the war with light production in the first post-war year. The next two years showed only a slight gain over the highest pre-war rate, and finally there have been sharp increases in the past three years.

When cement production was making its rapid percentage increase in the early years of the present century, the steel industry had some fear that demand for steel would suffer in consequence. These fears have proved groundless. For one case in which concrete has supplanted steel there is generally another in which concrete stimulated the use of steel.

Production statistics commonly cited in recent years refer only to Portland cement production, ignoring the natural and puzzolan cements that formerly had much vogue. When Portland cement production reached a million barrels a year, eight times as much natural cement was being produced. Below is given the total production of all cements, natural, puzzolan and Portland, through 1909, and the subsequent production of Portland cement:

Cement Production, Barrels

1830–39	1,000,000	1900–09	387,561,523
1840–49	4,250,000	1910–19	839,953,890
1850–59	11,000,000	1920	100,023,245
1860–69	16,420,000	1921	98,842,049
1870–79	22,082,000	1922	114,789,984
1880–89	44,940,858	1923	137,460,238
1890–99	98,817,325	1924	148,859,000

Until recently pig iron production doubled every decade. Up to 1880 cement production did not increase so rapidly, and thus in the decade of the eighteen-seventies the relation was almost exactly one barrel of cement to one ton of pig iron. Then cement gained on pig iron. In the ten years ended 1919 there were 2.68 barrels of cement per ton of pig iron, while in 1924 there were 4.75 barrels per ton of pig iron.

It is impossible to make out a clear case of cement directly competing with steel for a specific employment. Concrete walls sometimes take the place of skeleton steel construction, but on the other hand when concrete replaces masonry it calls for steel reinforcement.

In an economic sense, however, cement plainly has been a factor as against steel. Roundly speaking, the people as a whole have so much money to spend and if they spend it on one thing they cannot spend it on another. Likewise there are only so many workmen and if they do not work at one thing they work at another. The great increase in cement consumption in the past few years is due chiefly to the building of highways, which involves little steel directly. Railroad building involves much steel, and according to statistics of the *Railway Age* 6536 miles of new railroad have been built in the past ten years against 36,973 miles in the preceding ten. The highways, however, encourage the use of motor vehicles, which wear out much faster than locomotives and freight cars, and thus in another way cement is a stimulus to steel.

For Unbiased Reports on Corporations

NOT long ago we printed an editorial taking the position that company managers who solicit the public to subscribe for their bonds and stocks should submit an independent engineering report telling the public what property the company has, its prospective earning capacity, etc. Our advice was neither impractical nor chimerical, as witness the following recent remark by a Wall Street newspaper:

> "Chicago, Milwaukee & St. Paul Railway has engaged a well-known firm of consulting engineers to make an independent study of the road's position and prospects. H. E. Byram, president of the company, adds that this will give holders of the $48,000,000 junior bonds maturing June 1 an opportunity to consider on independent information any refunding plan that the management may suggest."

If investors should refuse to put their money into loans or enterprises unsupported by independent engineering studies they would reduce

their worry. If they should turn deaf ears to unsupported offerings, promoters and salesmen would be quick to learn the lesson.

Making Raw Material Prices

RECENT reports that Lake Superior iron ore was likely to advance for the 1925 season, with the inference that therefore pig iron prices would advance, led to the rejoinder that so little iron ore actually passes through the open market that it cannot be expected to have much influence upon pig iron prices. It was added that even a good many years ago it was observable that pig iron prices had more influence in determining ore prices than ore prices had in making pig iron prices. Yet there was a day when the ore producers were a separate and a powerful class, able in good times to set almost their own prices on ore, prices that furnacemen paid without question.

This case of vertical integration, whereby the mining of iron ore and the operating of blast furnaces have been combined, suggests reference to other similar developments in the iron and steel industry. As long ago as July 16, 1908, THE IRON AGE printed an editorial on "The Passing of the Steel Billet," remarking that years before it had been a matter of comment that the steel billet was disappearing as a market factor, and that in the preceding three years the disappearance had become practically complete. Once the 4-in. billet was described as a great invention. That is, there was a discovery that a billet 4 in. square represented the best place at which the steel producing operation could leave off and certain operations of steel finishing begin.

There was a period also in which even the largest steel companies bought pig iron from the merchant furnaces, at first continuously and then in a later stage when their requirements were above normal. Every upturn in steel trade activity was marked by repeated rounds of buying of pig iron by the large steel companies, the last of such series occurring in 1912.

The sheet bar has survived the billet in that it still represents a large tonnage in what may be considered open market transactions, even though the business may be done in the form of contracts. Yet the great bulk of the sheet bars are produced by the consumers.

In all these cases it may be said that whatever the circumstances at early stages, the later development was that the condition of the market for the finished product practically dictated the price obtainable for the cruder material.

Scrap is another raw material, but it differs from others in that there has never been any claim that it is a governing factor. The fact always has been that it has gone for what it would bring.

The general principle is well established that as the successive stages of manufacture are integrated, the prices of the finished products, which have to be disposed of in open market transactions, must determine the prices of raw and intermediate materials which continue to be bought and sold in limited proportions of the total amount made and consumed.

Just at the moment the Connellsville coke market is an interesting commentary on the principle indicated above. Year by year the amount of Connellsville coke sold has been a diminishing proportion of the total amount made, the consumers themselves producing more and more. Last November Connellsville coke prices had a sharp rise, and then came a stiff wage advance. Operators thereupon added to the existing price the cost of the wage advance. However, the new asking price has failed to "make good," presumably because there is no alinement that would enable the doubly advanced price of coke to be passed on. Circumstances beyond the stage of coke manufacture have a great influence in determining what can and will be paid for coke.

Our Half-Yearly Index

The index of THE IRON AGE for the past half year, July to December, inclusive, has been compiled and printed and is now ready for distribution. It will be forwarded to those who have entered their names on our list as desiring it. Others who may have use for copies will be furnished them by our circulation department upon request.

Books Received

Die Windführung beim Konverterfrischprozess. By Hayo Folkerts. Pages 160, 7 x 10¼ in., illustrated. Published by Julius Springer, Linkstrasse 23-24, W. 9, Berlin, Germany. Price, 13.20 gold marks in paper cover, 14.10 gold marks in cloth binding.

Arc Welding and Cutting Manual. Issued by the General Electric Co. Pages 127, 8¼ x 10¾ in., illustrated. Published by the General Electric Co., Schenectady, N. Y.

Transactions of the American Institute of Chemical Engineers. Vol. XV, Part 2. Pages 323, 6¼ x 9¼ in., illustrated. Published by the American Institute of Chemical Engineers and for sale by the D. Van Nostrand Co., 8 Warren Street, New York. Price, $5.

Structural Engineers' Handbook. By Milo S. Ketchum. Third edition, enlarged. Pages 1065, 6½ x 9¼ in., illustrated. Published by the McGraw-Hill Book Co., Inc., 370 Seventh Avenue, New York. Price, $7.

Interstate Commerce Commission. Thirty-eighth Annual Report. Pages 273, 5¾ x 9¼. Published by the Government Printing Office, Washington.

Public Employment Offices. Their Purpose, Structure and Methods. By Shelby M. Harrison in collaboration with Bradley Buell, Mary La Dame, Leslie E. Woodcock and Frederick A. King. Pages 685, 6¼ x 9½ in., illustrated. Published by the Russell Sage Foundation, New York. Price, $3.50.

Statistical Abstract of the United States. Issued by the Department of Commerce, Bureau of Foreign and Domestic Commerce. Pages 878, 6 x 9¼ in. Published by the Government Printing Office, Washington. Price, 85 cents in paper cover.

The American Institute of Steel Construction has issued a 64-page booklet entitled "Steel Construction," which contains the Institute's standard specification and code of standard practice. Copies may be obtained from the executive offices of the institute, 350 Madison Avenue, New York, or the engineering department, 1052 Leader-News Building, Cleveland. The publication gives in handy form the engineering information necessary in respect to design, fabrication and erection of structural steel, and supplies the long felt want that it has been one of the major objects of the association to accomplish.

STEEL CORPORATION EARNINGS

For Sixth Time Extra Dividend Is Declared on Common

Deficit for Last Quarter after Paying Dividends and Deducting $20,000,000 for Additions and Improvements to Plants

The report of the United States Steel Corporation for the fourth quarter of 1924 was made public Tuesday afternoon with the announcement of the declaration of an extra dividend of one-half of 1 per cent on the common stock. This is the sixth consecutive extra dividend of one-half of 1 per cent.

The earnings for the fourth quarter were up to expectations, being $30,762,231, compared with $30,718,415 in the third quarter. After paying the preferred dividend of 1¾ per cent and the regular common dividend of 1¼ per cent, there remained a balance of $1,604,003. The payment of the extra dividend amounting to $2,541,512 left a deficit of $937,409 for the quarter. The surplus for nine months was $25,171,601, but from this was deducted not only the extra dividends but also $20,000,000 for "sums appropriated and expended or to be expended on account of additions, improvements or betterments to plants and properties." This left a surplus for the year of only $4,234,092, which compares with $14,282,390 for 1923 after a deduction of $20,000,000 had been made in the same way. Earnings for 1924 and the three preceding years were as follows:

Quarters	1924	1923	1922	1921
First.....	$50,075,445	$34,780,069	$19,339,985	$32,286,722
Second....	41,381,039	47,858,181	27,286,945	21,892,016
Third.....	30,718,415	47,053,680	27,468,339	18,918,058
Fourth...	30,762,231	49,958,980	27,552,392	19,612,033
	$152,937,120	$179,650,910	$101,647,671	$92,708,827

EARNINGS FOR FOURTH QUARTER

	Earnings Before Charging Interest on the Subsidiary Companies' Bonds Outstanding	Less: Interest on the Subsidiary Companies' Bonds Outstanding	Balance of Earnings
October, 1924 ...	$12,898,907	$662,893	$12,236,014
November, 1924...	9,566,111	662,535	8,903,576
December, 1924....	10,285,263	662,622	9,622,641
	$32,750,281	$1,988,050	

Total earnings after deducting all expenses incident to operations		$30,762,231
Less, charges and allowances for depreciation, applied as follows, viz.:		
To depreciation and extraordinary replacement funds and sinking funds on bonds of subsidiary companies	$9,237,121	
To sinking funds on U. S. Steel Corporation bonds	2,611,084	11,848,205
Net income		$18,914,026
Deduct: Interest for the quarter on U. S. Steel Corporation bonds outstanding	$4,520,746	
Premium on bonds redeemed	217,645	4,738,391
Balance		$14,175,635
Add: Net balance of sundry receipts and charges, including adjustments of various accounts		87,070
Total		$14,262,705
Dividends on stocks of the United States Steel Corporation, viz.:		
Preferred, 1¾ per cent	$6,304,920	
Common, 1¼ per cent	6,353,782	12,658,702
Balance		$1,604,003
Balance of surplus for nine months ending Sept. 30, 1924		25,171,601
		$26,775,604
Less: Extra dividend—common, ½ of 1 per cent	$2,541,512	
Sums appropriated and expended, or to be expended, account of additions, improvements or betterments to plants and properties	20,000,000	22,541,512
Balance of surplus for year		$4,234,092

FEW CALL FOR RELIEF

General Electric and American Locomotive Companies Issue Statement as to Conditions at Schenectady

SCHENECTADY, N. Y., Jan. 27.—Statements from the two largest manufacturing companies in this city and the Chamber of Commerce indicate that business conditions in Schenectady do not warrant the recent reports of widespread unemployment and distress. Only 200 men have applied to the city for relief, many of them from out of town; a smaller number than usual in an industrial city of 100,000 at this time of the year. Banks report an increase in savings accounts of nearly $5,000,000 during the last year.

The following statement was issued by the General Electric Co., the American Locomotive Co., and the Chamber of Commerce:

"The low point in the business depression, as affecting Schenectady, was reached several months ago, and improvement in all lines of business has been steady since then.

"The Chamber of Commerce investigated the reported situation and found it greatly exaggerated. Business in Schenectady during the year was much better than in many other industrial centers. This drew to the city some unemployed from other cities, who were not all absorbed by local industries.

"The General Electric Co. in Schenectady found it necessary to lay off about 5 per cent of its 22,000 employees some months ago, but to prevent this layoff from becoming larger and causing distress, over $1,000,000 was appropriated for the manufacture of stock parts at this plant, which is keeping many workers at least on part time. In recent weeks an improvement in business has resulted in some reemployment by the Company and many on part time have been put on full time. Only four cases of real need among its former employees have come to the attention of the company and these are being provided for.

"During the last three months the American Locomotive Co. operated nearly at capacity in its Schenectady plant, more than 3600 being now on its payroll.

"The building trades have had the best year in a long time. Seasonal unemployment in these trades is to be expected, but the demand for their services is still brisk, dependent somewhat upon the weather.

"Neither the Salvation Army, City Mission, Day Nursery nor clergymen have found a serious condition arising from unemployment. Few requests for relief have been made of clergymen, and the Salvation Army reports that conditions are somewhat better than usual at this time of the year."

Detroit Theory as to Weakness of Old Material Market

DETROIT, Jan. 27.—Further evidence of weakness in the market on old material in this district was reported during the week with blast furnace scrap registering a decline of 75c. per ton and hydraulic compressed showing a low point of $15.25. With practically all the mills out of the market, some dealers have shown a desire to unload from yard stocks which has been an additional softening factor. The general opinion seems to be that the present condition of the market is an adjustment to pig iron levels and will begin to show strength in the future.

The following prices are quoted on a gross ton basis f.o.b. producers' yards, excepting stove plate, No. 1 machinery cast and automobile cast, which are quoted on a net ton basis:

Heavy melting steel	$17.25 to $17.75
Shoveling steel	17.25 to 17.75
Borings and short turnings	13.25 to 13.75
Long turnings	13.25 to 13.75
No. 1 machinery cast	18.50 to 19.00
Automobile cast	22.00 to 23.00
Hydraulic compressed	15.25 to 15.75
Stove plate	16.50 to 17.50
No. 1 busheling	14.50 to 15.00
Sheet clippings	12.50 to 13.00

European Markets Generally Quiet

Export Business Hard to Obtain—German and Belgian Prices Higher—Franco-German Trade Arrangement Still Under Discussion

(By Cablegram)

LONDON, ENGLAND, Jan. 26.

DOMESTIC demand for pig iron is moderate, but the absence of export business keeps prices easy, as makers are unable to dispose of their surplus supplies. Buyers also are hesitating, in view of the downward tendency of prices. Hematite has an easy tone on increased output and keenness of the makers to sell.

Foreign ore is dull with consumers here, but America is inquiring for 250,000 tons. Germany is negotiating for Spanish grades. Bilbao Rubio is held at 22s. to 22s. 6d. ($5.28 to $5.40) c.i.f. Tees, nominal.

Finished steel inquiry is improving, with better business for export. Makers are keen sellers on prompt specifications, but higher prices generally are asked for forward shipments.

Sheets and Tin Plate

Tin plate is steady, although there is no marked improvement. There is fair inquiry for oil sizes for Eastern consumers, but the general demand, it is anticipated, will revive shortly when the differences between the makers and the merchants have been settled. Independent makers' and merchants' committees are meeting in Swansea today and a final settlement is expected.

Galvanized sheets are quiet, after recent heavy bookings to Indian and South American specifications. The makers are well sold for several weeks in advance.

Black sheets are dull. There is very little Far Eastern inquiry.

On the Continent of Europe

Continental markets are firm, with good sales of wire and wire nails to Far Eastern markets. Consumers here are in want of semi-finished material, but generally are not willing to pay the prices asked. Merchants have sold billets at £5 7s. 6d. ($25.80), f.o.b., and sheet bars at £5 10s. ($26.40), f.o.b.

GERMAN STEEL PRICES HIGHER

Blooms and Steel Bars Advance—Thin Sheets Lower Than Last Week

(By Radiogram)

BERLIN, GERMANY, Jan. 26.—Steel blooms have been raised in price to 120 marks per metric ton ($29.04 per gross ton). Steel bars have been advanced 2 marks to 142 marks, corresponding with 1.54c. per lb., compared with 1.51c. last week. This is an advance of 10 marks over the price on Jan. 5, corresponding with 1.43c. per lb. Thin steel sheets have reacted 224 marks (2.42c. per lb.) from 230 marks or 2.49c. last week. Three weeks ago the price was 220 marks or 2.39c.

BELGIAN PRICES ARE RISING

Iron and Steel Makers Busy—Semi-Finished Material Largely Sold Out

ANTWERP, BELGIUM, Jan. 7.—The situation of the market at the beginning of the year is favorable. In general steel products are firm and the higher prices obtained last fortnight have been easily maintained. Even more, for different commodities prices have a further upward tendency, while already good business has been done at the ruling prices. Important orders have been offered from abroad and another big order has been placed by the Belgian Government, when 3400 freight cars were ordered, nearly all of them going to Belgian manufacturers. A good number of

British and Continental prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at $4.80 per £1, as follows:

Durham coke, del'd..	£1	4½s.			$5.88		
Bilbao Rubio ore†...	1	4			5.76		
Cleveland No. 1 fdy..	4	4½			20.28		
Cleveland No. 3 fdy..	3	19½			19.08		
Cleveland No. 4 fdy..	3	18½			18.84		
Cleveland No. 4 forge	3	18			18.72		
Cleveland basic	4	0			19.20		
East Coast mixed.....	4	7			20.88		
East Coast hematite..	4	19	to £5	0s.	23.76	to	$24.00
Ferromanganese	15	0	to 15	5	72.00	to	73.20
*Ferromanganese ...	15	0	to 15	5	72.00	to	73.20
Rails, 60 lb. and up..	8	10	to 9	0	40.80	to	43.20
Billets	7	0	to 8	0	33.60	to	38.40
Sheet and tin plate bars, Welsh	8	7½			40.20		
Tin plates, base box..	1	3½			5.64		
					C. per Lb.		
Ship plates	9	0	to 9	10	1.93	to	2.04
Boiler plates	13	0	to 13	10	2.79	to	2.89
Tees	9	0	to 9	10	1.93	to	2.04
Channels	8	5	to 8	15	1.77	to	1.87
Beams	8	0	to 8	10	1.71	to	1.82
Round bars, ¾ to 3 in.	9	5	to 9	15	1.98	to	2.09
Galv. sheets, 24 gage	17	5	to 17	10	3.70	to	3.75
Black sheets, 24 gage	12	10	to 12	15	2.68	to	2.73
Black sheets, Japanese specifications	15	5			3.27		
Steel hoops	10	15	and 12	10*	2.30	and	2.68*
Cold rolled steel strip, 20 gage	16	0			3.43		

*Export price.
†Ex-ship, Tees, nominal.

Continental Prices, All F. O. B. Channel Ports

Foundry pig iron: (a)							
Belgium	£3	15s.	to £3	16s.	$18.00	to	$18.24
France	3	15	to 3	16	18.00	to	18.24
Luxemburg	3	15	to 3	16	18.00	to	18.24
Basic pig iron: (a)							
Belgium	3	14	to 3	15	17.76	to	18.00
France	3	14	to 3	15	17.76	to	18.00
Luxemburg	3	14	to 3	15	17.76	to	18.00
Billets: (a)							
Belgium	5	10			26.40		
France	5	10			26.40		
Merchant bars:					C. per Lb.		
Belgium	6	0			1.29		
Luxemburg	6	0			1.29		
France	6	0			1.29		
Joists (beams):							
Belgium	5	15			1.23		
Luxemburg	5	15			1.23		
France	5	15			1.23		
Angles:							
Belgium	6	2½			1.31		
⅛-in. plates:							
Belgium	7	2½	to 7	7½	1.53	to	1.58
Germany	7	2½	to 7	7½	1.53	to	1.58
⅜-in. ship plates:							
Luxemburg	7	2½	to 7	7½	1.53	to	1.58
Belgium	7	2½	to 7	7½	1.53	to	1.58

(a) Nominal.

German tenders were made but these prices were found, in nearly all cases, to be on the high side. This results in a good prospect of work for many mills, with perhaps for the makers some profit.

For bars £6 f.o.b. Antwerp ($28.65 or 1.28c. per lb. with today's rate of exchange) is the lowest price obtainable, even for a good tonnage and a favorable specification. The price quoted by nearly all the works at the beginning of this week was not higher than £5 18s. 6d. ($28.30 or 1.26c. per lb.) while it is reported that some works are fully decided not to consider orders below £6 2s. 6d. (i.e. $29.25 or 1.33c. per lb.)

Prices in general a fortnight ago and today, which are not much discussed and represent minimums, are:

	Mid-December	Jan. 7		
	Fr.	Fr.		C. per Lb.
Bars	550	575	$28.75	1.30
Joists (beams)	545	550	27.50	1.25
Rods	630	655	33.25	1.51
Corrugated bars	650	675	33.75	1.53
Hoops	775	800	40.00	1.81
Cold rolled steel hoops	1,050	1,100	55.00	2.49
Drawn steel, squares	1,050	1,075	53.75	2.44
Drawn steel, rounds	1,025	1,050	52.50	2.38
Drawn steel, hexagons	1,125	1,150	57.50	2.61
Spring steel	1,000	1,025	51.25	2.32
Rails	685	700	35.00	...
Wire rods	635	655	32.75	...

Joists are not so firm. Several makers have increased their prices but for this commodity it seems that £5 17s. 6d. and £6 ($28.65) as they ask, is quite unobtainable for the moment. Luxemburg and Lorraine makers quoted the same prices over all the line. Prices for sheets turned out as follows:

	Fr.	Per Gross Ton	C. per Lb.
Thomas sheets 0.5 mm. (No. 25½ gage)	1,250	$62.50	2.79
Thomas sheets 1 mm. (No. 19½ gage)	1,150	57.50	2.57
Thomas sheets 2 mm. (No. 14 gage)	850	42.50	1.90
Thomas sheets 3 mm. (No. 11½ gage)	750	37.50	1.67
Thomas sheets 5 mm. (No. 6½ gage)	680	34.00	1.52
Galvanized sheets 0.5 mm	2,250	112.50	5.02
Galvanized sheets 1 mm	1,650	82.50	3.68
Polished sheets, average price	1,640	82.00	3.66

Works are well provided with orders for sheets. On the other side a good number of orders is still available. Therefore this market has all reason to show strong with higher prices. Good business was noted for ⅛ in. sheets at prices such as 730 fr. f.o.b. Antwerp ($36.50 or 1.63c. per lb.), a price which is now most probably too low.

Demand for semi-finished products is still large. Most of the makers are sold out and general quotations run approximately as follows:

	Fr.	
Billets, Thomas steel	520	$26.00
Blooms, Thomas steel	500	25.00
Largets, Thomas steel	530	26.50
Steel bands	700	35.00

English buyers however do not offer more than £5 6s. for billets, in some special cases perhaps £5 7s. 6d., while the above quoted price reaches nearly £5 10s. It results of course from this position that almost no further business develops.

Commercial iron is not favorably treated. Prices are not so firm as for other commodities. They are for the export:

	Fr.	
Quality No. 2	590	$29.50
Quality No. 3	600	30.00
Quality No. 4	625	31.25

Pig Iron.—The high-phosphoric quality of foundry, with 2.5 to 3 per cent Si, is quoted at 360 fr., or $18, f.o.b. Antwerp, i.e., 25c. lower than a fortnight ago. Demand remains satisfactory in the country but prices offered by English buyers are much lower. That is why quotations got slightly reduced. Luxemburg and Lorraine makers quote the same price.

On the other hand, semi-phosphoric pig iron is higher. The grade 2.5 to 3 per cent Si is sold at about 400 fr. per gross ton f.o.b. Antwerp, i.e., $20, a price which turns out to about $23.50 c.i.f. Atlantic ports. Good American inquiries were in the market but as far as we know no business developed, on account of the fact that prices seem to be somewhat too high for American importers.

Coke prices are uncertain. For January furnace coke has been quoted at 145 fr. by the Coke Syndicate. Pig iron makers claim this price to be too high if compared with the actual price for coking smalls. Therefore a reduction may be expected.

GERMANS DISCUSS FRENCH TRADE

Friction on Tariff Matters—8-Hour Day Agitation Resumed—German Iron and Steel Active

BERLIN, GERMANY, Jan. 10.—No Franco-German iron agreement, much less the proposed international syndicate, has been negotiated. Today, when the most-favored-nation treatment obligation, imposed on Germany by the Versailles Treaty, expires, there is no commercial-treaty relation between France and Germany at all, and a tariff war is threatened. Before Jan. 1 the two countries were negotiating on basis of most-favored-nation treatment of French goods by Germany. In exchange France, which does not grant most-favored-nation treatment, was to apply her minimum duties to German goods. As the time was too short to complete a definitive commercial treaty before Jan. 10, France submitted the draft of a provisional agreement.

While the negotiations were temporarily suspended, the French Cabinet submitted to the Chamber a new tariff bill, which fixes both maximum and minimum duties very much higher than those in the old tariff, on the basis of which the Germans had been negotiating. Germans declare that this measure is intentionally directed against them, in view of the fact that the greatest increases of duties are for staple German export goods. Metal goods are hard hit. The minimum duties on manganese iron, fine tool steel, sheets, wire, boilers, hydraulic machinery, steam engines, dynamos, locks, tubes and iron and steel domestic utensils are multiplied between two and eight-fold. In other groups the duties are increased by as much as twenty-fold.

The Essen steel trade organ *Bergwerks-Zeitung* denies that if France's deliveries were shut out a scarcity of semi-finished material would ensue in Germany. It adds that the real production capacity of the Steel Syndicate's component concerns is 17 to 18 million metric tons, and not 13½ million tons, as appears from adding the separate production quotas. From a tariff war German export trade would suffer relatively little, because German sales to France are small, apart from reparations deliveries.

With Italy no agreement has been come to. With Belgium difficulties are threatened. Germany suggested mutual most-favored treatment, and was ready to undertake not to increase the duties on certain Belgian products. Belgium, however, refuses most-favored treatment for certain German goods, and on her schedule of these goods appear important German export articles. Independently of reparations deliveries Germany has a passive trade balance with Belgium, her deliveries in the first nine months of 1924 being 63,825,000 marks, against Belgian deliveries worth 84,078,000 marks. Germany announces that from today she deprives of most-favored treatment all former enemy countries which have not granted reciprocity. From her list of countries which enjoy such treatment, all the chief former enemy countries except the United States and Great Britain are omitted.

Syndicates Slow in Forming

Negotiations for formation of subordinate syndicates for the specialized products within the compass of the Steel Syndicate have not yet been concluded. Most progress has been made with the proposed Tubes Syndicate. Difficulties are being faced in fixing satisfactorily the production quotas of the different corporations and firms. At Dusseldorf the former Association of Wire Cable Works Corporations has been extended into a Wire Convention which all cable wire and wire cable concerns have joined.

Owing to the general trade improvement, to the greatly increased activity in iron and steel, and to large export orders for Italy and Sweden, the Ruhr coal situation has somewhat improved. In Sweden English coal is being undersold by Ruhr coal. The coal output in the whole republic in the first 11 months of 1924 totaled 107,595,725 metric tons, against 55,922,408 tons in 1923, and 130,047,960 tons in the same area in 1913.

According to the mining concerns' reports the past month production cost of a ton of standard Ruhr coal

rose from 10.83 marks in 1913 to 18.71 marks today. The miners' labor union calculates production costs to be only 14.84 marks a ton. The skilled married miner's average wage is only 40.02 marks a week, or under $10, but is higher than the skilled iron or steel worker's wage, which averages 35.04 marks a week where 8 hr. a day are worked, and 37.01 marks where longer than 8 hr. are worked. Wages have of late risen less than the cost of living, the index for which (100 in 1914) at the end of 1924 was 122.9 against 110 at the beginning of the year. In the same 12 months the wholesale index for minerals of all kinds (100 in 1914) sank from 137.56 to 135.39. The socialist and labor union campaign in favor of restoration of 8 hr. and three shifts per day to the steel industry is vigorous. The Minister for Labor is being attacked for neglecting to declare the metal industries "unhygienic," in which case under the law of last winter the now predominant 10-hr. day would be prohibited.

Markets Active

Pig iron is fairly active. The market for nearly all products controlled by the Steel Syndicate is extremely active. Blooms, sheets, bars and wire rods are in great demand; for some sorts there is even shortage, and producers are refusing to book orders, having work for three months or more, and being unwilling to commit themselves to present prices for long terms. The thick sheets market, which remained extremely dull long after the recovery in the thin sheets market, is also active. Tubes and wire are in great demand. The scrap market is less active. After dealers had held back their stocks in hope of a further price rise, prices declined.

In December the demand for native Siegerland ores considerably increased. Shortage of money has checked the import of foreign ore; but increased contracts are reported to have been made for Wabana ore, which is cheaper than French minette, and which in consequence of its high iron content is preferred. The manganese market has been firm.

After prolonged dullness, the export trade in iron and steel finished goods has improved. Trade journals report many orders received in competition with rival European countries. The chief buyers are the Balkan States, Japan, Scandinavia and certain overseas countries.

Krupps, Phoenix and Rhenish Steel are reported to have large Bulgarian orders for railroad permanent-way material, and to have underbid Austrian, Czech and Belgian competitors. The reparations orders for railroad material for Jugoslavia continue; and further orders for 85 locomotives and 500 cars are impending. In competing for one foreign order a Cassel firm is reported to have underbid the lowest British offer by 33 per cent. A München-Gladbach engineering firm has received considerable foreign orders for machinery. Krupps are reported to have an order for 40 locomotives, and the Richard Hartmann A. G. for 10 locomotives, for the Sorocaba Railroad in Brazil. Shipbuilding is dull; and the shipping interests have appealed to the Government for a loan in order to avoid unemployment. The reported demand for a State shipping subsidy is officially denied.

Prices, scrap excepted, are firm or rising. First quality iron scrap sells at 79 to 80 marks per metric ton ($19.12 to $19.36 per gross ton), steel scrap 82 marks ($19.84), steel turnings 69 marks ($16.70). The Foundries' Association has put up prices 8 per cent. Prices in the first week of January averaged, ex-works:

	Gold Marks Per Metric Ton	Equivalent
Blooms	117 to 120	$28.31 to $29.04*
Billets	120 to 125	29.04 to 30.25*
Slabs	125 to 130	30.25 to 31.46*
Wire rods	150	36.30*
Bars	130 to 132	1.40c. to 1.43c.†
Structural forms	126 to 127	1.36c. to 1.37c.†
Bands	160 to 165	1.73c. to 1.78c.†
Thick sheets (over 5 mm.)	150	1.62c. per lb.
Medium sheets (3 to 5 mm. or No. 11½ to No. 6½ gage)	175	1.89c. per lb.
Thin sheets (1 to 3 mm.)	205 to 210	2.22c. to 2.27c.
Thin sheets (under 1 mm. or No. 19½ gage)	220	2.39c. per lb:

*Per gross ton. †Per lb.

The official *Wirtschaft und Statistik* publishes the following comparison, in gold marks per metric ton, of iron prices, which are averages for each whole year:

	Germany: Foundry Iron No. 3, Düsseldorf	England: Foundry Iron No. 3, Middlesbrough	U. S. A.: Foundry Iron No. 2, Cincinnati
1913	$74.50	$59.80	$61.60
1914	70.10	52.00	55.40
1917	79.90	89.80	165.60
1920	120.00	157.70	132.90
1922	68.80	82.80	98.00
1923	108.60	102.40	115.20
1924 (11 months)	92.96	80.78	98.90

A privately compiled report shows that of 272 blast furnaces in the republic 201 are owned by one or other of the 16 chief combines. the Stinnes concern having 33, Wolff concern 28, and Roechling-Buderus concern 26. These concerns produce 68,871,000 tons of coal out of 119,547,000 tons production represented in the Ruhr Coal Syndicate, and 14,064,000 tons of coke out of 26,221,000 tons produced. Of the steel output, according to the various processes between 75 and 92 per cent is produced by the 16 combines.

AUSTRIAN IRON AND STEEL FLAT

Steady Reduction of Output Through 1924—Pig Iron Production Ceases

VIENNA, AUSTRIA, Dec. 29.—General industrial conditions in Austria are not improving. Unemployed last month numbered 88,250 against 78,000 in October. The foreign trade balance remains heavily passive. Credit is hard to obtain. Prices have of late risen rapidly, more rapidly than in the United States, and this has involved a large increase—since the beginning of 1924 about 50 per cent—in the note circulation. The government has appointed a commission of inquiry to determine the causes of this price rise. The gold cost-of-living is now 21.4 per cent above that of September, 1922, when the currency was stabilized, and the wholesale index has risen to 144.

In the Vienna metal industries are 11,700 unemployed persons. Nevertheless, the steel and iron branches are slightly better off than in the third quarter of the year. In late September pig iron production entirely ceased, and the Donawitz Steel & Rolling Mill Co. temporarily stopped operation. Only 15 open-hearth furnaces were under fire at the end of the third quarter, against 31 during the first quarter. The demand for pig iron, semi-finished materials and rolled goods fell to minimum dimensions. Money shortage checked home buying and increasing protectionist measures caused difficulties in export to Hungary, Poland and Jugoslavia. The small production of ore, iron, steel and coal fell to new low levels:

In Metric Tons per Quarter	Jan.-March	April-June	July-Sept
Iron ore	216,201	270,158	177,561
Coal and lignite	841,162	664,980	687,053
Pig iron	107,899	93,172	51,630
Steel	140,922	112,328	63,895
Rolled goods	102,415	86,786	52,213
Exports of pig iron		11,797	9,570

In October the Socialist party asserted in the National Council that the output reduction of the Alpine Montan Co., as a result of which many workmen were discharged, was an intentional result of the cartel formed on Feb. 8 with the Czech iron industry and that, under this cartel the Alpine company found it more profitable to close its shops than to operate them. The government denied this charge. Immediately afterward the Alpine reopened various works. To help over the crisis, and before the usual date, large State contracts were given for rails, springs and other material. The 12,000 tons of rails ordered equaled about a whole normal quarter's output, and was double the output in the second quarter of 1924.

In certain of the metal finishing branches an improvement is recorded; but German competition is keen, particularly in agricultural machinery, dynamos and sewing machines (which practically all come from Germany). The new Austro-German trade agreement reduces considerably Austria's import duties on German goods of these classes. The automobile industry is dull, the main reasons being foreign tariff obstacles against import, and shortage of money at home.

TO PROMOTE STEEL MAKING

Movement to Encourage Industries of California —Meeting at Del Monte

SAN FRANCISCO, Jan. 25.—Meeting for the purpose of developing methods of protecting and expanding the iron and steel enterprises of California, 175 representatives of the California iron and steel industry in conference at Del Monte under the auspices of the California Development Association Jan. 23 and 24, elected a State executive committee and adopted resolutions calling for a survey of the State steel industry and for the formulation of a State-wide clearing house of producers, distributors and principal users of steel products to function under the California Development Association and the executive committee of the State steel industry. Maynard McFie, president W. T. McFie Supply Co., Los Angeles, chairman of the conference, was elected chairman of the executive committee. C. M. Gunn, Gunn, Carle & Co., San Francisco, was elected vice-chairman, and Charles S. Knight, director industrial department California Development Association, San Francisco, was elected secretary.

Charles F. Abbott, executive director American Institute of Steel Construction, following his address on the work and plans of the institute, received 16 new membership applications from California structural fabricators.

Maynard McFie, chairman of the conference, in the keynote address, stressed the importance of creating class consciousness among the various branches of the industry in California, but with the clear understanding of ethical cooperation with the whole fabric of the national industry.

The first session was devoted to addresses by F. J. Koster, president California Barrel Co., Paul Shoup, vice-president Southern Pacific Railroad and W. E. Creed, president Pacific Gas & Electric Co., and Columbia Steel Corporation. Separate group meetings of producers, distributors and users of steel were held at the second session. The closing session was featured by the joint adoption of resolutions and the election of the executive committee which meets March 6 at Los Angeles.

MINING ENGINEERS

Program for Steel Sessions at Annual February Meeting—Special Lectures

The 131st meeting of the American Institute of Mining and Metallurgical Engineers will be held Feb. 16 to 19 at the Engineering Societies building in New York. The program for the iron and steel sessions is as follows:

Monday, Feb. 16, 2 p. m.

"Manganiferous Iron Ores of Cuyuna District, Minnesota," by Carl Zapffe, Brainerd, Minn.

"Economics of the Cuyuna Manganiferous Iron Ores," by C. P. McCormack, Crowell & Murray, Cleveland.

"Probable Error in Blast Furnace Record and Calculations Therefrom," by T. T. Read, Bureau of Mines, Washington.

"Reduction of Iron Ores by Carbon Monoxide," by Heihachi Kamura, Meiji Mining Co., Japan.

"Effect of Sulphur on Blast Furnace Process," by T. L. Joseph, Minneapolis, Minn.

Wednesday, Feb. 18, 9.30 a. m.

"Chemical Equilibria During Solidification and Cooling of White Cast Iron," by H. A. Schwartz and (Mrs.) Anna Nicholson Hird, National Malleable & Steel Castings Co., Cleveland.

"Some Factors Affecting the Elimination of Metalloids in the Basic Open-Hearth Process," by C. H. Herty, Jr., Lackawanna, N. Y.

"Finishing Melting Temperatures of Simple Ingot Steels," by Henry D. Hibbard, Plainfield, N. J.

"Reversing Blooming Mill Practice," by G. A. V. Russell, Lamberton & Co., Coatbridge, Scotland.

"A Note on the Reaction Between Manganese and Iron Sulphide," by C. H. Herty, Jr. and O. S. True, Lackawanna, N. Y.

"Brief History of the Metallurgical Practice of Cannon Making with Particular Reference to the Cast Iron Gun," by Job Goostray, R. F. Harrington and M. A. Hosmer, Hunt-Spiller Mfg. Corporation, Boston.

The Howe memorial lecture this year will be delivered at 4 p. m., Monday, by Dr. John A. Mathews, vice-president Crucible Steel Co. of America, whose subject will be "Austenite and Austenitic Steel."

The annual Institute of Metals lecture will be contributed by Dr. Carl Benedicks, director Metallographic Institute, Stockholm, Sweden. His subject will be "Corrosion Studies: With Special Reference to Hot Wall Action and Segregation."

The Institute of Metals Division will hold three sessions, Monday morning and afternoon, Feb. 16, and Tuesday afternoon.

Improved Foundry Operations

Rogers, Brown & Co., Cincinnati, in their current review of the pig iron market make the following appraisal of foundry operations in different lines:

"While in a few particular lines foundry melt has not increased as rapidly as was hoped, nevertheless there is a general improvement throughout the country which augurs well for excellent business, possibly at somewhat higher prices throughout the first half at least. So much publicity has been given to advances of the steel companies to approximately a 90 per cent basis, no further mention of the activity in that line is necessary. As a direct result of this activity, the roll foundries are busy. Agricultural implement manufacturers are more active than they have been in years, especially in the tractor departments. Stoves are seasonably slack, but general heating equipment is running nearly to capacity, though some stocking is being done in anticipation of the spring demand.

"Foundries catering to the automobile manufacturers are somewhat disappointed that the manufacturers continue to buy on short time schedules, which makes it difficult for them to plan their program far into the future. They are, however, running at a favorable rate. The machine tool foundries are now beginning to do better and are optimistic as to the future. Railroad equipment suppliers are running close to capacity, and while the textile machinery makers are down to from 60 to 75 per cent capacity in different districts the activity of the textile mills themselves is very much better and the prospects in that industry are considered bright. Jobbing foundries, as a whole, seem to be in about the worst shape, a number reporting that they have felt comparatively little impetus to business this year. The sanitary companies report operations proceeding at close to 100 per cent of capacity and pipe shops are among the busiest."

Ohio Foundries Make Slight Gain

The Ohio State Foundrymen's Association reports that December operations show a very slight increase over November, the figure being 63 per cent of normal or capacity. November stood at 62.8 per cent and December, one year ago, at 57 per cent.

Stocks on hand have decreased sharply, December standing at 76 per cent; November 98 per cent and December, one year ago, 93 per cent.

Stocks received have decreased to 57 per cent; November stood at 60 per cent and December, one year ago, 45 per cent.

Non-ferrous operations declined to 49 per cent. Last month indicated approximately 52 per cent.

The annual meeting of the Trumbull Steel Co., Warren, Ohio, is scheduled to be held at 2 p. m., Feb. 3, at the company's principal offices. The report for 1924, to be submitted by President Jonathan Warner, is expected to show a substantial surplus for common stock after taxes, charges and dividend payments.

JAPAN BUYS ROLLING MILLS

One Company to Have Ultimate Sheet Capacity of 150,000 Tons—Inquiries for Sheet Bars—American Importers Active

NEW YORK, Jan. 27.—Export trade continues quiet with only a light volume of merchant buying in evidence from the Far East. Importers in the United States are, however, becoming more active in offering quotations on Continental material. With the approach and observance of the new year, Chinese markets have taken on their usual quiet. The quotations of American mills for export, with the exception of prices made on black sheets, which have increased to $101 and more per ton, c.i.f., are reported to be practically unchanged.

Japanese efforts toward native production of finished products on a larger scale continue to produce results. The new sheet mill recently purchased by the Kawasaki Dock Yard Co. from the Mackintosh Hemphill Co., is reported installed and two more have been contracted for with Suzuki & Co., probably to be furnished by the National Roll & Foundry Co. The present mill will give the Kawasaki Dock Yard Co. an annual capacity of 30,000 to 40,000 tons of light gage black sheets and with all three units in operation production will be close to 150,000 tons a year. Other black sheet producers in Japan are the Imperial Government Steel Works and Furukawa & Co. The formation of a government controlled steel corporation in Japan is still under serious consideration by the Diet, but no action is yet reported.

The Kawasaki Dock Yard Co. has asked for prices on 10,000 tons of open-hearth sheet bars for use in its new sheet mill, bids to be opened Feb. 20. While European prices on this material would, as on most products, be lower than American, it is believed in some quarters that the disinclination of German steel works, the most likely low bidders on open-hearth material, to sell anything but the finished product for export, and the desire of Japanese works to produce sheets of a quality to compare favorably with the American product so much in demand may bring this order to an American mill.

A recent request from Japan for prices on 1000 boxes of tin plate of the specifications usually consumed by the canning industry is believed to be from a merchant source. The Keijō Denke Kabushiki Kaisha, in the market for several weeks for 2½ miles of 82-lb. rails and ½ mile of 117-lb. rails with switch material, has asked for quotations on about 800 chilled iron car wheels. An inquiry not yet in the hands of the exporters, but reported to be in preparation, is from the Kyushu Electric Railway and includes about 30 miles of 75-lb. and 30 miles of 90-lb. sections.

While importers in the United States are becoming active in making quotations on European material to American consumers, sales have thus far been small. No further purchases of Continental rails are reported, but importers have made highly competitive prices for various small lots for the smaller consumers. The steel materials now being offered from European makers are largely open-hearth products, particularly those of German mills, and there is an increased willingness to meet the requirements of the American consumer. One importer in New York recently closed on 700 tons of bars, rounds, squares and flats, for a consumer in the Boston district. The purchase by the Adirondack Light & Power Co., Amsterdam, N. Y., of 17 miles of 12-in. steel pipe, reported in THE IRON AGE last week, was from a French mill operating on the Mannesmann process. The price is said to have been equivalent to the cost of installing domestic lap or butt welded pipe.

Construction of a wire mill with a capacity of 1000 tons a day at Rouyn township in Canada is announced, provided the Canadian Government constructs a branch line from Makamik, Que. A construction project in Uruguay that, according to reports to the Department of Commerce, is arousing considerable interest among French and German government representatives, is at the point where the Government has called for bids for the construction of a free port at Colonia. Specifications in Spanish are available through the machinery division of the Department of Commerce, Washington.

Changes in Shipbuilding Output

Three months ago the British Isles had under construction 356,000 tons more of merchant shipping than all the other nations of the world combined. At the end of December, however, the situation had changed so that the rest of the world was building 123,000 tons more than the British Isles, according to Lloyd's Register of Shipping. Meantime the total construction of the world had diminished by more than 4 per cent, as shown in the table:

Gross Register Tons	Dec. 31, 1924	Sept. 30, 1924
United States	58,174	64,905
Great Britain and Ireland	1,173,465	1,468,408
Other Countries	1,238,797	1,047,699
World Total	2,470,436	2,581,012
Of Above:		
Motor Vessels	923,738	939,899
Other Types	1,546,698	1,641,113

Construction in Europe at the end of December included 379,044 tons in Germany and Danzig, 197,170 tons in France, 154,790 tons in Italy and 124,766 tons in Holland. Except for the German figures these all show substantial increases over the Sept. 30 totals. It will be noted that all are more than twice the figure given for the United States.

Steel Furniture Shipments

Shipments of steel fruniture reported by 22 manufacturers to the Department of Commerce amounted in December to $1,611,075, the highest figure since April and higher than any 1923 figure, with the exception of March. This figure brings the 1924 total to $17,381,252, which was exceeded by 1920 with $17,659,303, but otherwise is the largest total reported. Annual figures for the past six years are shown in the table:

1919	$10,895,203	1922	$12,928,026
1920	17,659,303	1923	16,834,029
1921	11,327,830	1924	17,381,252

Acme Steel Goods Co. Report

The Acme Steel Goods Co., Chicago, established records for both shipments and net earnings in 1924. Its balance available for dividends totaled $922,062, after all charges and taxes, equivalent to $16.24 a share on the 56,772 shares of no par value stock outstanding at the end of the year. This compares with a balance of $761,674 or $15 a share on 50,772 shares in 1923. Net sales in 1924 aggregated $7,007,870 as compared with $6,622,639 in 1923, the previous high mark. At the same time selling and administrative expenses showed only a slight increase. The company improved its working capital position to the extent of more than $500,000 during 1924, and on Dec. 31 current assets exceeded current liabilities by $2,272,649, more than seven to one. Cash alone amounted to more than one and a half times current liabilities. Stockholders at the annual meeting reelected all directors, who in turn reelected all officers.

January business of the Youngstown plant of the Lumen Bearing Co., with principal offices in Buffalo, established a new monthly record, according to Kester Barr, manager. He states the company has been operating at a high rate since October, 1924, with a progressive increase each month in the volume of its business. It supplies copper materials and products in considerable volume for blast furnace repair work.

Dexter S. Kimball, dean of the college of engineering, Cornell University, Ithaca, N. Y., and A. W. Berresford, Niagara Falls, N. Y., were elected to serve as vice-presidents of the American Engineering Council, at its meeting in Washington, Jan. 16. Harrison E. Howe, Washington, D. C., was reelected treasurer and L. W. Wallace continues as executive secretary.

STEEL FOR HIGHWAYS

Saving Due to Simplification—Estimates of Tonnage Used

WASHINGTON, Jan. 27.—As stated in THE IRON AGE of last week, the American Association of State Highway Officials has indorsed the program for the reduction in variety of reinforcing steel bars, adopted at a general conference of manufacturers, distributors and users, held under the auspices of the Division of Simplified Practice, Department of Commerce, a few weeks ago. The division has announced that it has been informed by the highway commissions of Iowa and Illinois that the specifications for 1925 construction have been made to conform to the recommended practices, which call for elimination of varieties.

The division has reported that estimates by Government agencies placed the amount of steel used in highway construction in 1923 at some 37,000,000 lb. (18,590 net tons) in the Federal aid program which involved a total construction of approximately $144,900,000. Of the 37,000,000 lb. of steel of all kinds used in this construction, the estimates place the amount of reinforcing bars at 22,000,000 lb. (11,000 net tons). The figures of all State construction of highway for the same period were around the billion dollar mark.

Using these figures and applying the ratio based on the Government estimates, this would mean approximately 38,170 net tons of reinforcing bars and 26,025 net tons of structural steel. It is to be kept in mind that Federal aid, which represents 50 per cent of the total highway State construction, inasmuch as the State is required to match dollar for dollar with the Government, does not cover all of the highway work. For example, it does not include work on municipal undertakings, the opening and improvement of thoroughfares that are not a part of the State highways.

In 1921, according to official figures, $112,325,000 was spent on completed road work which received Federal aid. These figures show that this work involved 5059 net tons of structural steel, 389 net tons of expanded metal used in payments, and 8475 net tons of reinforcing bars. The total cost of this steel was $2,376,000, of which $1,348,800 was for reinforcing bars and $976,571 for structural steel; and $60,618 for the expanded metal.

At the simplification conference, emphasis was laid on the fact that the reductions in variety of reinforcing bars would mean considerable saving to both manufacturers and distributors, and that inevitably any economies from simplification would eventually be reflected in the price to the consumer, of which the highway construction agents and taxpayer bodies are representative. With the indorsement of the American Association of State Highway Officials, the program for the reduction in sizes was adopted and the publication of the simplified practice recommendations regarding steel reinforcing bars is now under way as a part of the Department of Commerce "Elimination of Waste" series. The publication will soon be available for general distribution.

INCREASE IN WORKS COUNCILS

One-third of Councils in Metal Trades—Massachusetts Leads

Over 800 works councils or employee representation plans, covering more than a million workmen, are today in operation in the United States, says the National Industrial Conference Board, New York. This has resulted from a practically continuous and rapid increase since 1917. During the last five years the number of councils rose from 225 in 1919 to 725 in 1922 and 814 in 1924 and the membership from 391,000 in 1919 to 690,000 in 1922 and to 1,177,000 in 1924.

Massachusetts leads in the number of works councils within her borders, increasing from 11 in 1919 to 31 in 1922 and to 105 in 1924. Other States having more than 10 councils in 1924 are New York, with 60; Washington, 45; Illinois, 39; Ohio, 30; Pennsylvania, 29; Connecticut, 28; California, 27; New Jersey, 19; Maryland, 18; Minnesota, 13, and Wisconsin, 11.

Considered by industries, the metal trades account for almost exactly one-third of all the works councils; lumber for about one-fifth, and the printing trades for about one-seventh. A conspicuously large decrease since 1922 in mining is due to the ending by the Federal Government of its insistence on works councils during the functioning of the Fuel Administration.

Nearly two-thirds of the 1,177,000 employees who are governed by works council plans are grouped in 11 industrial establishments employing 15,000 or more persons, and more than one-tenth more are in nine establishments employing from 10,000 to 15,000; on the other hand works councils in establishments employing less than 200 men are comparatively few. This seems to be because the contact between employer and employee in small establishments makes councils unnecessary; and because the operations of large plants, which are apt to be scattered, makes the contact between employer and employee slight and the councils valuable.

Thirty-five employers who once operated about 50 works councils, now discontinued, ascribe the breaking up of one-third of them to the business depression of 1920-1921, which so reduced the number of employees as to make the council of little use; of another third to lack of interest due to various causes, among which was that the close relations between employer and employees made them really unnecessary, and the other third, about one-half to friction and the rest scattered.

President Campbell Urges Employees to Save This Year

In an appropriate "thrift" message last week to employees of the Youngstown Sheet & Tube Co., President James A. Campbell takes occasion to point out that this year should be an opportune time for workers who do not own their own homes to acquire one, because of the likelihood of steady employment.

"All basic conditions are sound and point to prosperity for some time to come," he states. "The year which has just passed offered little opportunity for saving because, while wages were not reduced, the earnings of both labor and capital were reduced by lack of demand and consequent irregularity of industrial operations. Conditions are now more favorable and the present year should enable most of us to lay aside some of our earnings. It is believed that operations will be more continuous for the year at least.

"Next to providing decently for his family, the most important duty of every wage earner is to provide for old age. It is a well-known fact that many working men are dependent at 65 years of age—almost always because they neglected to save when their earning power was high enough to make saving possible."

U. S. Tool Co. Acquires Ampere Plant

The U. S. Tool Co., which operates shops and assembling department at 51 Lawrence Street, 78 and 117 Mechanic Street, Kirk Alley and Ward Street, Newark, N. J., has acquired the Ampere plant of the General Electric Co., which consists of three new buildings of modern fireproof construction. It will take possession of the acquired property about Feb. 1 and plans to consolidate all its interests in the new quarters. Two of the buildings of the Ampere group provide 83,000 sq. ft. of floor space, which will be used for operations and assembling, while the third building will be used for office purposes. The U. S. Tool Co. employs about 500 persons and manufactures blanking, drawing and forming dies, gages, fixtures, jigs, etc., and specializes in the design and construction of automatic machinery and standard sub presses. A metal-treating department also is operated and a department has been opened for the manufacture of variable air condensers for radio use. A. Dierick is the new manager in charge of the New York office, 145 Lafayette Street.

Iron and Steel Markets

OTHER PRICE ADVANCES

Large Operations and Shipments—Gains in Consumers' Stocks

Some Uncertainty in Pig Iron—Further Declines in Old Material

The main new feature of the week has been the announcement of $2 a ton advances on certain rolled products by various steel companies. At Chicago the Steel Corporation followed the leading independent company in going to 2.30c. for plates and shapes and to 2.20c. for bars. Several sheet producers have advanced to a 3.70c. basis for black sheets, as against 3.60c. The latest of the $2 advances is on wire, a Pittsburgh district independent having taken the initiative.

These advances are based on the large bookings the principal producers have for the next 60 days, and in the Chicago district for a longer period, also on the expectation that as spring comes on the industries consuming steel will be able to increase their operations beyond the present rate.

January has been marked by liberal shipments of finished steel to buyers, and in many cases the latter, with only moderate plant operations, have accumulated stocks of steel, being quite willing to do this because of the low prices at which it was bought.

The Steel Corporation, at 94 per cent this week, is practically running at its steel ingot capacity, and the large independent companies are holding up to their recent high rates. The Steel Corporation has taken business in January in excess of its shipments. Though it has done better in that respect than most independents, its gain in unfilled orders this month will naturally be quite below that of December.

Fourth quarter earnings of the Steel Corporation, at $30,762,000, against $30,718,000 in the third quarter, were better than expected, lower prices being more than offset by larger output. The present quarter will have increased volume but at low prices.

Rail orders have been a leading factor this week, amounting to more than 130,000 tons, with the 90,000 tons of the Pennsylvania Railroad, which has yet to place 20,000 tons of extra heavy rails. At Chicago the Burlington and subsidiaries took 20,000 tons of rails and 10,000 tons of track supplies. An early advance is looked for in spikes, track bolts and tie plates.

The Flushing bridge of the New York subway system and the Pennsylvania Railroad bridge at Steubenville, Ohio, account for one-half of the 31,000 tons of fabricated steel purchases reported this week. Though not necessarily significant, the tonnage of new projects is only one-half of the recent weekly average. There are wide variations in fabricated steel prices.

The sheet market presents the dual aspect of only a moderate January business and of a $2 per ton advance by several independent producers, or to 3.70c. for black. Automobile body sheets have been offered at 4.60c., or $3 a ton below the so-called regular price. Sales for early delivery indicate a 3.50c. to 3.60c. market for black sheets.

Better sheet orders from the automotive industries are counted on for February. An increase from 300 to 400 tractors a day in one company's output is reported due to the receipt of a large Russian order.

At Pittsburgh some producers of semi-finished steel have developed a surplus over their own and regular customers' requirements and sheet bar concession of $1 is reported. An interesting inquiry for 10,000 tons of sheet bars comes from the new sheet mill of the Kawasaki Dock Yard Co. in Japan.

The pig iron market is very quiet and the competition of both Indian and Dutch irons continues to be felt along the Atlantic seaboard. Reports of the selling of Buffalo iron by brokers at 50c. under the recent market and of concessions on iron in southern Ohio are among indications that the market has no great strength, but it is to a large extent untested for second quarter delivery. The unsteadiness in coke has caused a revision of recent calculations that high coke would reinforce the pig iron market.

Prices on old material have declined still further in nearly all centers. There has been good buying by steel companies at Chicago but without strengthening heavy melting steel. The fall in scrap is having a good deal of attention for its possible bearing on the steel situation in coming weeks, in view of the prophetic record of the old material market.

Pittsburgh

Movement to Establish Higher Steel Prices—Pig Iron Dull

PITTSBURGH, Jan. 27.—The week has been featured by the first definite step toward establishing steel prices on a higher level for second quarter business. Several of the independent sheet companies have announced an advance of $2 a ton, and while this change is to become effective immediately, it is not likely to apply on much tonnage to leave the mills before April 1, since practically all makers are obligated against probable production over the remainder of the quarter.

Several of the independent makers of plates and bars also have announced an advance of $2 a ton. The Steel Corporation subsidiaries as yet have taken no action on sheets or in the heavy tonnage line.

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics

At date, one week, one month, and one year previous

For Early Delivery

Pig Iron, Per Gross Ton:	Jan. 27, 1925	Jan. 20, 1925	Dec. 29, 1924	Jan. 29, 1924
No. 2X, Philadelphia‡	$25.01	$25.01	$25.01	$23.63
No. 2, Valley Furnace†	22.50	22.50	22.00	23.00
No. 2, Southern, Cin'ti†	24.05	24.05	24.05	26.55
No. 2, Birmingham, Ala.†	20.00	20.00	20.00	22.50
No. 2 foundry, Chicago*	24.00	24.00	23.50	24.00
Basic del'd, eastern Pa.	24.25	24.25	23.50	22.50
Basic, Valley furnace	22.00	22.00	21.50	22.00
Valley Bessemer del. P'gh.	24.76	24.76	24.26	24.76
Malleable, Chicago*	24.00	24.00	23.50	24.00
Malleable, Valley	22.50	22.50	22.00	22.50
Gray forge, Pittsburgh	23.76	23.76	23.26	23.26
L. S. charcoal, Chicago	29.04	29.04	29.04	29.15
Ferromanganese, furnace	**115.00**	110.00	110.00	107.50
Rails, Billets, Etc., Per Gross Ton:				
O.-h. rails, heavy, at mill	$43.00	$43.00	$43.00	$43.00
Bess. billets, Pittsburgh	37.00	37.00	37.00	40.00
O.-h. billets, Pittsburgh	38.00	38.00	37.00	40.00
O.-h. sheet bars, P'gh.	*39.00*	40.00	38.00	42.50
Forging billets, base, P'gh.	42.50	42.50	42.50	45.00
O.-h. billets, Phila.	41.67	41.67	41.67	45.17
Wire rods, Pittsburgh	48.00	48.00	48.00	51.00
	Cents	Cents	Cents	Cents
Skelp, gr. steel, P'gh, lb.	2.00	2.00	2.00	2.35
Light rails at mill	1.80	1.80	1.80	2.15
Finished Iron and Steel,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia	2.28	2.28	2.32	2.57
Iron bars, Chicago	2.00	2.00	2.00	2.40
Steel bars, Pittsburgh	2.10	2.10	2.10	2.40
Steel bars, Chicago	**2.20**	2.10	2.10	2.50
Steel bars, New York	2.44	2.44	2.44	2.74
Tank plates, Pittsburgh	2.00	2.00	2.00	2.50
Tank plates, Chicago	**2.30**	2.20	2.20	2.60
Tank plates, New York	2.34	2.34	2.34	2.74
Beams, Pittsburgh	2.10	2.10	2.10	2.50
Beams, Chicago	**2.30**	2.20	2.20	2.60
Beams, New York	**2.44**	2.34	2.34	2.74
Steel hoops, Pittsburgh	2.50	2.50	2.50	3.00

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.
†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

Sheets, Nails and Wire,	Jan. 27, 1925	Jan. 20, 1925	Dec. 29, 1924	Jan. 29, 1924
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 28, P'gh.	3.60	3.60	3.60	3.85
Sheets, black, No. 28, Chicago dist. mill	3.70	3.70	3.70	...
Sheets, galv., No. 28, P'gh.	4.75	4.75	4.75	5.00
Sheets, galv., No. 28, Chicago dist. mill	4.85	4.85	4.85	...
Sheets, blue, 9 & 10, P'gh.	2.70	2.70	2.70	3.00
Sheets, blue, 9 & 10, Chicago dist. mill	2.80	2.80	2.80	...
Wire nails, Pittsburgh	2.85	2.85	2.85	3.00
Wire nails, Chicago dist. mill	2.95	2.95	2.95	...
Plain wire, Pittsburgh	2.60	2.60	2.60	2.75
Plain wire, Chicago dist. mill	2.70	2.70	2.70	...
Barbed wire, galv., P'gh.	3.55	3.55	3.55	3.80
Barbed wire, galv., Chicago dist. mill	3.65	3.65	3.65	...
Tin plate, 100 lb. box, P'gh.	$5.50	$5.50	$5.50	$5.50
Old Material, Per Gross Ton:				
Carwheels, Chicago	*$20.00*	$21.00	$21.50	$20.50
Carwheels, Philadelphia	19.50	19.50	19.50	21.00
Heavy steel scrap, P'gh.	*20.50*	21.50	22.00	22.00
Heavy steel scrap, Phila.	*18.50*	19.00	21.00	19.00
Heavy steel scrap, Ch'go.	*18.00*	19.50	19.75	18.50
No. 1 cast, Pittsburgh	**20.00**	19.50	19.50	21.00
No. 1 cast, Philadelphia	*19.50*	20.00	20.50	21.00
No. 1 cast, Ch'go (net ton)	*19.00*	19.50	20.00	20.50
No. 1 RR. wrot. Phila.	*20.50*	21.00	21.00	22.00
No. 1 RR. wrot. Ch'go (net)	*16.00*	17.50	17.25	15.50
Coke, Connellsville, Per Net Ton at Oven:				
Furnace coke, prompt	*$3.75*	$3.85	$4.15	$4.00
Foundry coke, prompt	4.75	4.75	5.00	4.75
Metals,				
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York	15.12½	15.12½	15.00	13.00
Electrolytic copper, refinery	*14.62½*	14.75	14.62½	12.50
Zinc, St. Louis	7.62½	7.80	7.80	6.50
Zinc, New York	7.97½	8.15	8.15	6.85
Lead, St. Louis	*9.75*	10.35	9.80	8.10
Lead, New York	*10.00*	10.60	10.15	8.37½
Tin (Straits), New York	**57.25**	57.00	59.00	48.25
Antimony (Asiatic), N. Y.	*16.50*	17.37½	17.50	10.50

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market report on other pages.

THE IRON AGE Composite Prices

Jan. 27, 1925, Finished Steel, 2.560c. Per Lb.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 88 per cent of the United States output of finished steel.	Jan. 20, 1925,	2.560c.
	Dec. 29, 1924,	2.560c.
	Jan. 29, 1924,	2.789c.
	10-year pre-war average,	1.689c.

Jan. 27, 1925, Pig Iron, $22.50 Per Gross Ton

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham.	Jan. 20, 1925,	$22.50
	Dec. 29, 1924,	22.17
	Jan. 29, 1924,	22.69
	10-year pre-war average,	15.72

1924 High	1924 Low		1923 High	1923 Low
2.789c., Jan. 15	2.460c., Oct. 14	Finished Steel	2.824c., April 24	2.446c., Jan. 2
$22.88, Feb. 26	$19.21, Nov. 3	Pig Iron	$30.86, March 20	$20.77, Nov. 20

January has not brought out a very large volume of new business and specifications against first quarter contracts placed late last year have been very irregular, running heavy one day only to decrease the next, and in a general way January has fallen somewhat short of December in point of releases against contracted tonnages. There has been no material letdown, however, in steel plant operations, and if the higher prices that have been announced in the past week have their usual effect upon specifications, the common belief is that February will see operations maintained very close to the present rate. Failure of the automotive industry to take out much steel in January has had a considerable bearing on the month's business, but as that industry is scheduled for heavier production in February, the expectation is for an appreciable gain in the demand from that quarter.

The market in the primary materials still is dull and weak. Hardly enough business has developed in pig iron to seriously test the market, but it is no secret that the weakness in the coke market has given buyers an argument against higher prices and signs are not lacking that the appearance of a good sized inquiry would bring some revision of price ideas of producers. A good deal of beehive coke oven capacity has been suspended as a result of the recent price weakness, but despite that fact supplies of spot tonnages are still in excess of the demand and sales are difficult even at low figures.

A further decline of the open-hearth grades of scrap

finds its explanation in a continued light demand from consumers, and some anxiety on the part of dealers to find an outlet for supplies. If precedent counts for anything, the recent course of the scrap market would suggest some slowing down in the steel works operations in the next five or six weeks. In recent years the scrap market has been a rather safe barometer of future steel works operations.

The semi-finished steel market does not present quite so strong a front as it did recently, as some producers have found that they have a surplus over their own requirements and those of their regular customers and in open-hearth sheet bars, where the scarcity seemed to be the most acute a few weeks ago, there has been a recession of $1 per ton in asking prices.

Pig Iron.—Trading has fallen off to very slim proportions in the past week. So far this year melters' actual requirements have not been up to expectations and while they have shown no disposition to hold up shipments against contracts, they are not yet evidencing much interest in second quarter supplies. Small lots of foundry iron are moving at $22.50, Valley furnace, for delivery over the remainder of this quarter and at $23 for second quarter shipment, but the demand is entirely from small lot users and the test of prices awaits the appearance of the large buyers. There have been no inquiries of consequence in the steel making grades and prices to a considerable degree are nominal. The recent upset in the coke market has entailed a considerable recasting of producers' ideas as to second quarter costs and selling prices. It looked for a time as though second quarter coke would command a stiff advance over the prices of first quarter tonnages and that this would mean further advances in pig iron. The fact that the smaller operators in the Connellsville district did not fully meet the advance in wages of the larger producers has changed the general complexion of the coke situation and while second quarter coke prices just now are indefinite, the prevailing idea is that they will not be so high as was suggested a few weeks ago. There is a good deal of talk that some of the larger coke producers who returned to the Frick scale on Dec. 16 now are trying to find means of reducing wages again. The uncertainty as to coke prices and also of ore prices is not without effect upon pig iron trading. Last week's prices hold, but the market is not strong at these levels.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being $1.76 per gross ton:

Basic	$22.00 to $22.50
Bessemer	23.00 to 23.50
Gray forge	22.00 to 22.50
No. 2 foundry	22.50 to 23.00
No. 3 foundry	22.00 to 22.50
Malleable	22.50 to 23.00
Low phosphorus, copper free	29.00

Ferroalloys.—Prices are holding at recent levels, with a good movement of materials on specifications on contracts, but with new business of very limited proportions. Some steel manufacturers are covered well into this year on ferromanganese at prices well below today's prices and all manufacturers have sufficient tonnage due them on old purchases to be free from the necessity of large additional purchases for at least the remainder of the present quarter. The situation is much the same in the other ferroalloys. Prices are given on page 383.

Semi-Finished Steel.—Open market activities still are limited and some producers are beginning to find that they have some steel for sale. This is reflected in offerings of open-hearth sheet bars at $39, Youngstown, as against the recent asking price of $40. The needs of nonintegrated manufacturers are not so large or urgent that many of them are finding supplies coming on contracts to be insufficient. Bessemer steel still is plentiful and difficulty is had in making sales at today's quotations. We note one fair-sized sale of open-hearth slabs at $38, Pittsburgh, but no other sales of consequence are reported. The possibility of an advance in wire products, which would probably embrace rods, is stimulating specifications of the latter. Current quotations on skelp find little or no basis in sales, as users generally are protected by contracts placed at well below today's prices. Steel works operations are holding at the recent average of somewhat above 85 per cent of ingot capacity. Prices are given on page 383.

Iron and Steel Bars.—Some of the independent companies have advanced prices of steel bars $2 a ton, but it is believed that this step is taken as a means of getting the market up for second quarter tonnages, since makers are well obligated for the present quarter and by the same token consumers are very well protected for this period. On current business for early delivery the market still appears to be at 2.10c. base, Pittsburgh. Iron bars are firm at 3c., base, for refined iron bars, in lots of a carload or more. Prices are given on page 382.

Structural Material.—Small shapes, such as are rolled on bar mills, are embraced in the advance of $2 a ton announced this week by several independent bar makers. Pittsburgh makers still are at 2.10c. base, Pittsburgh, for large structural beams, the effect of the recent advance in Chicago being to solidify that price rather than to stiffen it. Competition for fabricated steel business still is sharp and prices do not yet reflect the advance that has taken place in plain material. Prices are given on page 382.

Wire Products.—The idea that higher prices are immediately ahead has grown more pronounced in the past week and has been responsible for continued free specification against orders on mill books. Some makers describe the past week as the best in a year in point of tonnage releases. The prevailing idea is that the next price change will be an advance of $2 a ton, carrying nails to $2.95, base, per keg, Pittsburgh, and plain wire to $2.70, base, per 100 lb. Fence and fence wire have not shown much life so far this year, but the expectation still is of a good spring business. The leading interest is operating between 85 and 90 per cent of capacity and the general average of this branch of the industry is close to 85 per cent. Prices are given on page 382.

Rails and Track Supplies.—Specifications against old and lower priced orders for spikes and other track supplies are reported to be good, but new business is light and today's quotations are finding little basis in sales. Light rail business continues very moderate and efforts to lift prices are not successful. Standard rail bookings are heavy and for the time of year specifications are good. Prices are given on page 382.

Tubular Goods.—Butt welded pipe capacity in this and nearby districts is almost fully engaged, since there is a good demand in that direction in preparation for spring building. No such condition prevails in lap welded pipe capacity, because of the very moderate purchases from the oil producing districts. The fact that all prices have advanced in several producing districts in the past week or two, however, encourages expectations of a better business in the lap weld sizes as the spring approaches. The Wortham field, which at first was thought to be a flush field and likely to make an unfavorable supply situation worse, is reported to have fallen far short of expectations and is no longer feared as likely to add much to the surplus oil supplies. It is said that plans for the development of the Reagan, Tex., field call for a slow pace and with California counted for a lighter production and consumption on the increase, the thought is that stocks above the ground will decrease rapidly and new drilling will be necessary. Boiler tube business is gaining, but that development does not appear to be lending any strength to prices. Discounts are given on page 382.

Cold-Finished Steel Bars and Shafting.—Specifications against contracts are reasonably good, but they are not yet up to expectations and strictly new business is of very moderate proportions. This means that the great bulk of current mill shipments carry 2.70c., base, Pittsburgh, and that 2.80c. is not yet a very common sale basis. Larger operations of the automotive industry in February are counted on to bring out larger tonnage releases in the next few weeks. Prices are given on page 382.

Tin Plate.—General market conditions show no special change. Specifications were better for March shipments than they were for February, and the expectation is for a further increase for April deliveries. Shipment instructions must be in by Feb. 15. That date ordinarily would bring out second quarter price, but as makers generally obligated themselves for practically all of their production for the first half of the year, no formal second quarter price is likely. The leading maker is producing at about 75 per cent of capacity and is busier in its western district mills than in its nearby units. We continue to quote standard coke tin plate at $5.50 per base box, Pittsburgh, for domestic business.

Plates.—The market this week is quotable all the way from 2c. to 2.20c., base Pittsburgh. Youngstown makers have announced an advance of $2 a ton to 2.20c., base Pittsburgh, but makers in Pittsburgh still are holding at 2c. and 2.10c. In this territory the highest price recently reported was 2.10c., Pittsburgh, and that only on a small tonnage. Plates, however, are regarded as being too low in price and selling pressure is not heavy, although several makers are in position to make reasonably quick deliveries against new business. Prices are given on page 382.

Sheets.—A number of the independent makers have announced an advance of $2 a ton in the common finishes, but as yet the American Sheet & Tin Plate Co. is not ready to indicate its prices for second quarter tonnages. The higher prices announced by independent makers are immediately effective and are to apply on business taken for shipment over the remainder of this quarter and in the second quarter. There seems to be some doubt that much business for this quarter can be secured in black sheets at any advance over recent prices because a number of mills have open capacity for early deliveries and the supply of black sheets is further increased by the fact that there is not the usual production of galvanized sheets because of the lack of profit in that finish on today's high cost of zinc and some difficulty in securing sufficient labor to man the galvanizing departments. Sales of black sheets still are noted as low as 3.50c., base. The sheet industry still is operating at a high rate, although specifications this month have fallen somewhat short of expectations. This is largely due to very light orders from the automotive industry. Current production is at about 85 per cent of capacity. Prices are given on page 382.

Hot-Rolled Flats.—The situation has undergone no special change since a week ago, except that with the completion of inventories there has been some loosening up in specifications. Prices are given on page 382.

Cold-Rolled Strips.—Specifications against contracts are somewhat freer than they have been, but new business suffers from the fact that consumers are well covered against their requirements for this quarter, and secondary consumption is not expanding in a fashion to force supplementary purchases. Prices are unchanged.

Bolts, Nuts and Rivets.—Aside from the specifications on fourth quarter contracts, this month has been a little disappointing in point of business with bolt and nut makers. This, however, has not tempted any shading of prices, the common report being that quotations are closely observed. There is a rather good business in rivets and prices are firm. Prices and discounts are given on page 383.

Coke and Coal.—Curtailment of coke production, although rather drastic, has not yet corrected the supply situation sufficiently to bring about any material strengthening of prices. Much of the accumulation of furnace coke has been sold, but this appears to have supplied a good many requirements and current offerings are finding a very limited market. Furnace coke for spot shipment is not hard to obtain at $3.75 per net ton at ovens, and only in a few instances have buyers been obliged to go as high as $4, although that price is bid on a fair-sized tonnage for shipment over the remainder of this quarter. Spot foundry coke still holds at $4.75 to $5.25. All negotiations for second quarter tonnages of furnace coke have been suspended because of the situation created by the failure of the wage increase made Dec. 16 by the larger independent Connellsville district operators to become general. The smaller producers appear to have succeeded in holding their men at about a 10 per cent advance over the former independent scale, and as the labor supply has become very ample in the Connellsville district, there is now a report that the larger operators are figuring on again reducing wages. Early ideas of producers as to second quarter prices have been dissipated by the wage situation and no very definite prices for that period can be given. The coal market is weaker on coking coal, in keeping with the weaker coke market. Slack coal has dropped about 10c. a ton because of increased offerings.

Old Material.—The market has weakened materially on the open-hearth grades of scrap since a week ago, and is fully $1 a ton lower on heavy melting steel. It usually happens that when there are offerings from one or two sources and dealers holding for firm prices lose a few sales, the total offerings increase and that is the case just now. The steel makers are buying very sparingly and dealers who have short sales to cover are the only buyers. The latter are not being pressed for deliveries as a rule and are in no hurry to cover. Sellers who have material on cars that must be moved have a hard time finding an outlet for it. There was some business in heavy melting grade at $21 and $21.50, the dealer who paid these prices being anxious to complete a contract promptly. But it would be hard to find a dealer or mill now willing to pay more than $21 and $20.50 is the more common bid. Over and above this technical situation the market is depressed by the fact that it does not look now as though the present high rate of steel works operations would be maintained and usually about the first of March there is a material increase in scrap outcomings. The market is holding fairly well on the steel foundry grades and while turnings and borings are easier, the tendency is not yet pronounced. Compressed sheets recently offered by a Pittsburgh district tin plate maker sold at $18.80, plant, as against $19.85 for the last previous lot awarded Jan. 2.

We quote for delivery to consumers' mill in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

Per Gross Ton	
Heavy melting steel	$20.50 to $21.00
No. 1 cast, cupola size	20.00 to 20.50
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa.	22.00 to 23.00
Compressed sheet steel	19.50 to 20.00
Bundled sheets, sides and ends	18.50 to 19.00
Railroad knuckles and couplers	23.50 to 24.00
Railroad coil and leaf springs	23.50 to 24.00
Low phosphorus blooms and billet ends	26.50 to 27.00
Low phosphorus plate and other material	25.00 to 26.00
Railroad malleable	20.00 to 20.50
Steel car axles	23.50 to 24.00
Cast iron wheels	21.00 to 21.50
Rolled steel wheels	23.50 to 24.00
Machine shop turnings	17.00 to 17.50
Short shoveling turnings	17.00 to 17.50
Sheet bar crops	23.00 to 23.50
Heavy steel axle turnings	19.00 to 19.50
Short mixed borings and turnings	15.50 to 16.00
Heavy breakable cast	19.00 to 19.50
Stove plate	17.00 to 17.50
Cast iron borings	17.00 to 17.50
No. 1 railroad wrought	17.50 to 18.00
No. 2 railroad wrought	20.50 to 21.00

Inland Steel Co. Earnings

CHICAGO, Jan. 27.—The Inland Steel Co. report for 1924 shows profits of $8,063,420 and net earnings after deducting depreciation, bond interest, estimated Federal taxes and employees' savings and pension fund, of $5,517,290.

Revenue freight loading for the week ended Jan. 10 made a new record for any January in our history, according to figures of the American Railway Association. The total for the week was 932,807 cars, which exceeded by about 60,000 cars the corresponding weeks of 1924 and 1923. In previous years a figure of this magnitude was not reached until more than a month later in the shipping season.

Chicago

Production of Steel Very Near Capacity—Sheet Prices Advanced

CHICAGO, Jan. 27.—The Inland Steel Co. today announced an advance of $2 a ton on sheets, making local delivered prices 3.85c. on black, 2.95c. on blue annealed and 5c. on galvanized. This comes on the heels of advances of $2 a ton on plates, shapes, soft steel bars and rail steel bars announced by the same company a week ago and since then generally adopted by mills in this district.

Although new business booked in January has not bulked so large as that taken in December, specifications have been in sufficient volume to warrant further increases in mill operations. In fact, the output in the heavier steel products is as close to 100 per cent as mechanical conditions permit. The leading interest, for example, is operating at 98 per cent of ingot capacity, the highest rate since 1920. A twelfth blast furnace has been lighted at Gary, making a total of 31 active steel works stack out of 34 in this district. An eleventh South Chicago furnace may be blown in during the week.

Although it is said that the pressure for shipments from the mills is not so spirited as some time ago, the active obligations of the producers in some commodities, notably soft steel bars, are unusually large.

Owing to deferred deliveries available from local sources, a number of orders for bars have been placed with mills east of here at 2.10c., Pittsburgh, or 2.44c., delivered.

A feature of the buying during the week was the placing of 127,000 tons of rails. Of 90,000 tons purchased by the Pennsylvania, 22,000 tons will be rolled by local mills. The Burlington has distributed orders for 20,000 tons as follows: 12,500 tons to the Colorado mill, 4500 tons to the Gary mill and 3000 tons to Inland Steel Co. No new railroad car buying is reported and fresh inquiries are negligible.

Advances of $2 a ton are also expected to be announced on track fastenings, hot-rolled strip steel and possibly wire products. Rerolling billets are said to be firm at $38, Chicago, and sheet bars at $40, with further advances a possibility. So far as can be ascertained, no advances are contemplated by steel pipe producers at this time.

In sharp contrast with the advancing tendency of steel prices is the pronounced weakness of scrap, which has declined $2 to $2.50 a ton during the past two weeks. The old material market is an unusually sensitive one and frequently portends subsequent tendencies in finished commodities. There is a sharp divergence of opinion, however, as to the significance of the current change. On the one hand, it is argued that scrap is suffering a temporary reaction following a too rapid advance; others feel that old materials are reflecting a reversal of sentiment regarding the business outlook. It is agreed on all hands that fundamental conditions are the most favorable since the war, but the view is now being advanced that production of iron and steel has increased more rapidly than consumption. As one observer has expressed it, the buying movement, which had its inception in November, came too early. While prospects in secondary lines are no less favorable than heretofore, the seasonal demands which accumulate with the approach of spring are only commencing to make themselves felt.

Pig Iron.—The market remains quiet, although slightly more active than a week ago. A local user has closed for 1000 tons of foundry for delivery over the next 30 days. A company with plants in Michigan and Iowa is inquiring for 1500 tons of foundry for second quarter. A Michigan melter serving the automobile industry has placed 1500 tons of foundry for delivery through the second quarter. Another user in that State has closed for 300 tons of high silicon Southern and 500 tons of Northern foundry for second quarter, the latter having gone to a Lake Erie producer at a reported price of $22.75, base furnace. In fact, lower quotations at outside producing centers are making it difficult for Chicago iron to get into Michigan and Indiana points. Southern Ohio iron has been particularly weak, as low as $21.75, Ironton, having been done. Chicago producers, however, are not suffering for want of business, being heavily booked through this quarter and to some extent into next. Requests for shipments are not so pressing as heretofore, but furnaces in this district are kept busy filling specifications. Prices appear to be firm in this market. There is a feeling that no further advances are imminent and hence there is no particular rush on the part of melters to protect themselves through second quarter. Silvery is growing firmer, but low phosphorus has declined on recent sales, which included separate lots of 200 tons, 250 tons and 200 tons. This commodity now ranges from $33.29 to $33.79, delivered Chicago. Charcoal is unchanged.

Quotations on Northern foundry, high phosphorus, malleable and basic iron are f.o.b. local furnaces and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards:

Northern No. 2 foundry, sil. 1.75 to 2.25	$24.00
Northern No. 1 foundry, sil. 2.25 to 2.75	25.00
Malleable, not over 2.25 sil.	24.00
Basic	24.00
High phosphorus	24.00
Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago	29.04
Southern No. 2 (barge and rail)	25.18
Southern No. 2 sil. 1.75 to 2.25	$26.01 to 27.01
Low phos., sil. 1 to 2 per cent, copper free	33.29 to 33.79
Silvery, sil. 8 per cent	35.29
Electric ferrosilicon, 14 to 16 per cent	45.75

Ferroalloys.—We note several sales of spiegeleisen, including one of 250 tons at $33, Eastern furnace. A carlot inquiry for 50 per cent ferrosilicon is current. Ferromanganese is inactive.

We quote 80 per cent ferromanganese, $122.56, delivered; 50 per cent ferrosilicon for 1925 delivery, $85, delivered; spiegeleisen, 18 to 22 per cent, $41.58, delivered.

Wire Products.—This market is characterized by inconsistencies, which make it difficult to anticipate the trend of business in the immediate future. There continues to be strong intimations of a possible early advance in prices and this contingency has been commanding more attention since the rise of $2 a ton in the heavier finished products. It is probably significant that specifications have shown measurable improvement during the week. Up to this time, buyers have been slow in sending in their shipping instructions, although releases in the aggregate have been sufficient to warrant 80 to 85 per cent mill operations. At the same time, there continues to be reports of concessions of $1 to $2 a ton on new business. For mill prices see page 382.

Plates.—The advance of $2 a ton announced by the leading independent last week has been followed by other local producers, making the ruling market quotation 2.30c., Chicago. Sales to car builders and structural fabricators during the week exceed 20,000 tons, while orders for 2000 tons of plates have been received from tank builders notwithstanding the recent decline in oil storage tank awards. The advance has tended to stimulate specifications and is likewise expected to arouse more interest in second quarter buying.

The mill quotation is 2.30c., Chicago. Jobbers quote 3.10c. for plates out of stock.

Sheets.—Although specifications have been lagging for the past few weeks, there has recently been a change for the better and this is accredited to the reported imminence of a $2 a ton advance. Mills are operating at the heaviest rate since last spring.

Chicago delivered prices from mill are 3.75c. for No. 28 black, 2.85c. for No. 10 blue annealed, 4.90c. for No. 28 galvanized. Delivered prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than the Chicago delivered prices.

Jobbers quote f.o.b. Chicago: 3.80c. base for blue annealed, 4.50c. base for black, and 5.50c. base for galvanized.

Warehouse Prices.—Local jobbers have advanced track spikes and bolts $2 a ton to 3.55c. and 4.55c. respectively.

Rails and Track Supplies.—Rail buying has been the feature of the week's business. The Pennsylvania has closed for 90,000 tons, distributed as follows: 14,000 tons to Illinois Steel Co., 8000 to Inland Steel Co., 35,000 tons to Carnegie Steel Co., and 33,000 tons to Bethlehem Steel Co. For the Burlington and its subsidiaries, the Colorado & Southern and the Fort Worth & Denver City, orders for 19,800 tons have been placed. The same system has divided 10,000 tons of spikes, bolts, angle bars and tie plates between the Inland, Illinois and Colorado companies. The Gary mill has booked the following rails: 4200 tons for the Monon, 3700 tons for the Nickel Plate, 3200 tons for the Elgin, Joliet & Eastern, 2200 tons for the Chicago & Western Indiana, 1200 tons for the Minneapolis & St. Louis, 1000 tons for the Clover Leaf, 500 tons for the American Frog & Switch Co., and an additional 1000 tons for the Baltimore & Ohio. An early advance of $2 a ton on spikes, bolts and tie plates is looked for.

Standard Bessemer and open-hearth rails, $43; light rails, rolled from billets, 1.90c. to 2c., f.o.b. makers' mill.

Standard railroad spikes, 2.90c. mill; track bolts with square nuts, 3.90c. mill; steel tie plates, 2.35c., f.o.b. mill; angle bars, 2.75c., f.o.b. mill.

Jobbers quote standard spikes out of warehouse at 3.55c. base, and track bolts, 4.55c. base.

Bars.—Mild steel bars have advanced $2 a ton to 2.20c., Chicago, and 16,000 tons for second quarter shipment have already been booked at that figure. Local mills have heavier forward commitments in this commodity than in any other product; in fact, April delivery is the best that can be definitely promised on some sizes. The advance has tended to stimulate specifications, which were commencing to drag. Rail steel bars have also advanced $2 a ton to 2.10c., mill. The two Chicago Heights mills are now on double turn and one of them is booked through the quarter. Demand for this commodity for reinforcing purposes has declined owing to the mid-winter lull in building, but business from bedstead, fence post and farm implement manufacturers is in encouraging volume. In fact, implement makers have specified in excess of their contracts, which, however, were notably conservative. The situation in bar iron is still one of sharp contrasts. A number of mills are holding to a minimum of 2.10c., Chicago, and some orders have actually been booked at as high as 2.25c., but there remains one producer who is still accepting tonnage at as low as 2c.

Mill prices are: Mild steel bars, 2.20c.; common bar iron, 2c. to 2.10c., Chicago; rail steel, 2.10c., Chicago mill.

Jobbers quote 3c. for steel bars out of warehouse. The warehouse quotations on cold-rolled steel bars and shafting are 3.80c. for rounds and 4.30c. for flats, squares and hexagons; 4.15c. for hoops and 3.65c. for bands.

Jobbers quote hard and medium deformed steel bars at 2.70c.

Structural Material.—A general advance of $2 a ton in plain material brings the ruling price up to 2.30c., Chicago. Specifications have been heavy during the past week and an encouraging amount of new business has been booked. Fabricating awards, on the other hand, have declined rather sharply, although a large amount of prospective work continues to make its appearance. A proposed addition to the Y. M. C. A. Hotel, Chicago, will require 5000 tons. A bridge at 101st Street and Calumet River, Chicago, on which general contract bids are about to be taken, calls for 1600 tons.

The mill quotation on plain material is 2.30c., Chicago. Jobbers quote 3.10c. for plain material out of warehouse.

Cast Iron Pipe.—Municipal buying continues to develop in encouraging volume. Toledo took bids Jan. 23 on 1310 tons of 6- to 24-in., and Fort Wayne, Ind., will receive tenders Jan. 29 on 240 tons of 6-in., 41 tons of 12-in. and 219 tons of 16-in. Bartlett, Ill., took figures yesterday on 190 tons of 6-in. and 40 tons of 8-in. The United States Cast Iron Pipe & Foundry Co. is low on 1263 tons of 6- and 12-in. for Chicago and on 3240 tons of 54-in. and specials for Milwaukee. Appleton, Wis., has awarded 147 tons of 4-in. to the National Cast Iron Pipe Co. Kenosha, Wis., closes Jan. 30 on 496 tons of 6-, 8- and 16-in. and 34 tons of fittings. Saginaw, Mich., has awarded 1500 tons to the Glamorgan Pipe & Foundry Co. Detroit has rejected bids on 60 tons of 6-in. class B and 200 tons of 8- to 12-in. class H, and will take new figures immediately.

We quote per net ton, f.o.b. Chicago, as follows: Water pipe, 4-in., $53.20 to $54.20; 6-in. and over, $49.20 to $50.20; Class A and gas pipe, $4 extra.

Bolts, Nuts and Rivets.—Specifications in bolts and nuts continue to drag, but this is due to the fact that most users ordered heavily against their fourth quarter contracts in December. Both large and small rivets are weak, with large ranging from $2.70 to $2.75, Chicago, and small from 70 and 10 off to 70 off, freight allowed within zone limits.

Jobbers quote structural rivets, 3.50c.; boiler rivets, 3.70c.; machine bolts up to ⅞ x 4 in., 55 per cent off; larger sizes, 55 off; carriage bolts up to ⅞ x 4 in., 50 off; larger sizes, 50 off; hot pressed nuts, squared, tapped or blank, $3.50 off; hot pressed nuts, hexagon, tapped or blank, $4 off; coach or lag screws, 60 per cent off.

Reinforcing Bars.—Following the advance in local mill prices, warehouse quotations on reinforcing bars in carload lots have advanced $2 a ton to 2.70c., Chicago. Protections which have been granted on pending projects will no doubt be exercised during the current week, and it is expected that many awards which have been delayed for some time will be driven in. Lettings for the past week have been few. Lettings include:

Tower Theater, Chicago, 130 tons, to Olney J. Dean & Company.

Municipal Paving Work, Brookfield, Ill., 100 tons, to Concrete Engineering Co.

Pending work includes:

Union League Club Building, Chicago, superstructure, 100 tons, bids on general contract to be taken this week.

Grade separation, Spring Wells, Mich., 100 tons.

Old Material.—The retreat of prices has become a rout and quotations of all grades are from 50c. to $1.50 below what they were a week ago. Heavy melting, which is the outstanding commodity of the list, has declined $2.50 a ton from the peak reached a fortnight past. Within the brief period of seven days, mills have bought melting steel at prices ranging from $20 down to $18.50, delivered. The scarcity of scrap, which was a matter of comment until recently, has been replaced overnight by an overabundance of material. Obviously those who were holding for further advances have been forced to unload by declining prices. Recent purchases of heavy melting by consumers have been heavy, an independent alone having contracted for 50,000 tons. Railroad offerings include the Burlington, 4700 tons, and the Union Pacific, 500 tons.

We quote delivery in consumers' yards, Chicago and vicinity, all freight and transfer charges paid, as follows:

Per Gross Ton	
Iron rails	$20.00 to $20.50
Cast iron car wheels	20.00 to 20.50
Relaying rails, 56 and 60 lb.	25.00 to 26.00
Relaying rails, 65 lb. and heavier	26.00 to 31.00
Forged steel car wheels	23.00 to 23.50
Railroad tires, charging box size	23.50 to 24.00
Railroad leaf springs, cut apart	23.00 to 23.50
Rails for rolling	21.00 to 21.50
Steel rails, less than 3 ft.	21.00 to 21.50
Heavy melting steel	18.00 to 18.50
Frogs, switches and guards cut apart	18.75 to 19.25
Shoveling steel	17.75 to 18.25
Drop forge flashings	13.50 to 14.00
Hydraulic compressed sheets	15.50 to 16.00
Axle turnings	16.50 to 17.00
Steel angle bars	19.50 to 20.00
Steel knuckles and couplers	22.00 to 22.50
Coil springs	23.50 to 24.00
Low phos. punchings	20.50 to 21.00
Machine shop turnings	12.00 to 12.50
Cast borings	14.75 to 15.25
Short shoveling turnings	14.75 to 15.25
Railroad malleable	20.00 to 20.50
Agricultural malleable	19.00 to 19.50
Per Net Ton	
Iron angle and splice bars	20.50 to 21.00
Iron arch bars and transoms	21.50 to 22.00
Iron car axles	26.50 to 27.00
Steel car axles	20.50 to 21.00
No. 1 busheling	14.75 to 15.25
No. 2 busheling	11.00 to 11.50
Pipes and flues	13.00 to 13.50
No. 1 railroad wrought	16.00 to 16.50
No. 2 railroad wrought	16.00 to 16.50
No. 1 machinery cast	19.00 to 19.50
No. 1 railroad cast	17.50 to 18.00
No. 1 agricultural cast	17.50 to 18.00
Locomotive tires, smooth	19.00 to 19.75
Stove plate	15.50 to 16.00
Grate bars	15.50 to 16.00
Brake shoes	15.50 to 16.00

New York

Steel Bookings Close to Shipments—Advance of $2 per Ton Now in Effect

NEW YORK, Jan. 27.—The sales of pig iron for the past week have not exceeded 10,000 tons, the largest single transaction being the purchase of 3100 tons of various grades for delivery in part in the second quarter and in part in the first quarter by the Burnham Boiler Co. About half of the tonnage is foreign iron. The inquiry of the Worthington Pump & Machinery Corporation for about 9000 tons for delivery at various plants in the second quarter has not been placed. It is understood that the problem of the corporation has been complicated by the activity of representatives of foreign companies who are anxious to book at least a part of this tonnage. Brokers who had on hand rather large stocks of Buffalo iron have been selling at $22.50, Buffalo, but the furnace price is firm at $23 base. A company in northern New York continues to quote $23 furnace. In eastern Pennsylvania prices range from $23.50 to $24. Pending inquiries include one for 1000 tons for second quarter, 1000 tons for first quarter and 500 to 1000 tons, largely for first quarter.

We quote delivered in the New York district as follows, having added to furnace price $2.52 freight from eastern Pennsylvania, $4.91 from Buffalo and $5.44 from Virginia:

East. Pa. No. 2, sil. 1.75 to 2.25	$26.02
East. Pa. No. 1X fdy., sil. 2.75 to 3.25	27.52
East. Pa. No. 2X fdy., sil. 2.25 to 2.75	26.52
Buffalo, sil. 1.75 to 2.25	27.91
No. 2 Virginia, sil. 1.75 to 2.25	30.44

Ferroalloys.—The ferromanganese market is not active although a moderate business has been done at the new price of $115, seaboard. One consumer has bought 1000 tons the last week and there have been sales of small and carload lots. Current inquiry is confined to lots of 50 to 100 tons. It develops that a large steel interest bought 10,000 tons of British ferromanganese in December. The spiegeleisen market is only moderately active at unchanged prices.

Cast Iron Pipe.—Municipal buying of water and gas pipe has not yet developed, although inquiries from a number of cities are expected before long. Private buying continues active. The Foundation Co., 120 Liberty Street, New York, has closed on 600 tons of 6-in. to 36-in. pipe for the Hudson Valley Coke & Products Corporation, Troy, N. Y., with R. D. Wood & Co. Makers of soil pipe report a continued active demand for shipments on contracts, but little new business is appearing, jobbers having apparently taken care of their immediate requirements.

We quote pressure pipe per net ton, f.o.b. New York, in carload lots, as follows: 6-in. and larger, $54.60 to $55.60; 4-in. and 5-in., $59.60 to $60.60; 3-in., $69.60 to $70.60, with $5 additional for Class A and gas pipe. Discounts on both Northern and Southern makers of soil pipe, f.o.b. New York, are as follows: 6-in., 40 to 41¼ per cent off list; heavy, 50 to 51¼ per cent off list.

Warehouse Business.—Quietness prevails in most lines, but more prominently in plates and structural steel. Demand is mild, yet in spite of this prices remain firm. The advance in galvanized sheets, which seemed almost certain in the peak demand of a month ago, now appears unjustified by sales. Spring steel is an exception, orders and inquiries being in fair volume; and there is talk of an increase in prices at the mill, but this is regarded as unlikely for the time. Mill deliveries are such as to offer still some competition. Dullness is attributed in part to weather conditions which hamper not only warehouse deliveries, but also deliveries of manufacturing consumers. Pig, tin, lead and solder prices have been marked down. Prices appear on page 398.

Finished Iron and Steel.—Substantially all the large producers have advanced the common forms of steel $2 a ton on any further purchasing, in some cases to cover also the second quarter and in other cases to cover shipments extending into the second quarter. These advances, which are noted elsewhere, and appear to cover sheets as well as wire, bars and shapes, mean a price level of $4 and $5 a ton above the prices on current shipments, at least as regards bars, plates and shapes. Light gages of black sheets are still mentioned at 3.50c., though with black quoted 3.70c. by larger mills, the low prices are expected to disappear. That the situation has stimulated specifying against contracts is shown in the fact that bookings so far in January appear to be nearly up to shipments, so that the backlog built up in December has not been materially reduced, and little if anything is going into mill stocks, semi-finished or otherwise. Producers emphasize, of course, the need of higher prices to make a profit, especially as most of the first quarter bookings were put through at $10 and $12 a ton below prices of a year ago, though meanwhile manufacturing costs have reflected the increase due to the introduction of the 8-hr. day, not to mention the lately higher cost of coal. So far full monthly quotas seem to be taken. As to specific demands, further evidence is available that railroad bridge work will be a notable factor this year. Foreign steel is making no special impression as yet, though some effort has been made to secure consideration on several thousand tons of concrete bars needed for sewer work in the metropolitan district. The New York Central is planning to buy 10 barges likely to take about 800 tons of plates. The increasing use of oil burning for house heating is shown by an inquiry from the Standard Oil Co. for 3000 tanks likely to call for 1500 tons of plates.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.44c. to 2.54c.; plates, 2.34c. to 2.44c.; structural shapes, 2.44c. to 2.54c.

Old Material.—Activity in the scrap market has declined to such a low level as to make it extremely difficult to establish the actual prices on many grades. No. 1 heavy melting steel is being purchased by brokers delivered to eastern Pennsylvania consumers at $17.50 to $19 per ton, depending upon the consumer. While no difficulty was encountered in securing all the material necessary to fill at $18.50, the recent tonnage shipped to Bethlehem, for which $19 per ton was paid, dealers are less inclined to dispose of more than small lots at the present buying price of $17.50. The $19 price on heavy melting steel prevails, with only a few brokers filling $20 contracts. Borings and turnings are quoted at $13.50 to $14 per ton, delivered eastern Pennsylvania. Machine shop turnings range from $12 to $12.50 per ton. Specification pipe continues unchanged with $18 per ton, delivered, the top price paid and some buyers offering only $17.50 per ton, delivered. Heavy breakable cast is off slightly with $18 per ton, delivered, the high price and $17.50 offered in many instances.

Buying prices per gross ton New York follow:

Heavy melting steel, yard	$13.50 to $14.00
Heavy melting steel, railroad or equivalent	14.75 to 15.25
Rails for rolling	16.00 to 16.50
Relaying rails, nominal	24.00 to 25.00
Steel car axles	21.50 to 22.50
Iron car axles	27.00 to 28.00
No. 1 railroad wrought	16.00 to 16.50
Forged fire	12.50 to 13.50
No. 1 yard wrought, long	15.00 to 16.00
Cast borings (steel mill)	11.00 to 11.50
Cast borings (chemical)	17.00 to 18.00
Machine shop turnings	12.00 to 12.50
Mixed borings and turnings	10.75 to 11.25
Iron and steel pipe (1 in. diam., not under 2 ft. long)	13.75 to 14.25
Stove plate	12.25 to 12.75
Locomotive grate bars	14.00 to 14.50
Malleable cast (railroad)	16.00 to 16.50
Cast iron car wheels	16.00 to 17.00
No. 1 heavy breakable cast	13.50 to 14.00

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast	$17.50 to $18.00
No. 1 heavy cast (columns, building materials, etc.), cupola size	15.50 to 16.00
No. 2 cast (radiators, cast boilers, etc.)	14.50 to 15.00

T. E. King, Denmark, S. C., has purchased the T. J. Price Machine & Foundry Co., Denmark, including all patterns and patents for manufacturing saw mill lumber trimmers and edgers and will do general repair work in connection with his rebuilt machinery business. He is in the market for one power hack saw to take material 6 in. or larger; one new, slightly used or rebuilt screw-cutting engine lathe of 8 to 10-in. swing, 4 or 6 ft. between centers, with hollow spindle and fitted with 4-jaw chuck, compound rest, power cross feed and taper attachment. One keyway milling attachment for use in drill press for cutting keyways up to ⅝ in. in small gears and pulleys is also wanted.

Cincinnati

Moderate Activity in Pig Iron—Old Material Prices Decline

CINCINNATI, Jan. 27.—Some interest is being shown in second quarter pig iron contracts, and most of the sales last week were for that delivery. An implement manufacturer took 1000 tons of malleable on the basis of $22.50, Ironton, while a large pump manufacturer closed for 1500 tons of foundry and Bessemer grades all the same figure. In addition there was a sale of 800 tons of foundry at $23, Ironton basis. For first quarter the price ranges from $22 to $23, Ironton, with a small block of spot shipment iron available at $21.75. In the South, while $20 can be done for first quarter, there is now nothing less than $21 for second quarter, with one large interest quoting $22 for first half. We note one sale of 500 tons of Southern iron for first quarter shipment at $20, and another of 500 tons for second at $21, Birmingham. The only inquiry of importance is for 500 tons of low phosphorus from a nearby steel foundry. Standard furnace in Tennessee is scheduled to go into blast this week.

Based on freight rates of $4.05 from Birmingham and $2.27 from Ironton we quote f.o.b. Cincinnati:

Southern fdy., sil. 1.75 to 2.25 (base)	$24.05 to $25.05
Southern fdy., sil. 2.25 to 2.75	24.55 to 25.55
Southern Ohio silvery, 8 per cent	32.77
Southern Ohio fdy., sil. 1.75 to 2.25	24.27 to 25.27
Southern Ohio, basic (nominal)	24.27
Southern Ohio malleable	24.27 to 25.27

Sheets.—Fill-in orders are numerous, and while attractive tonnages may be placed for quick shipment at concessions of $2 per ton, the regular first quarter price is being adhered to on the class of business now offering. Blue annealed sheets are quoted at 2.70c., black at 3.60c. and galvanized at 4.75c., f.o.b. Pittsburgh. Tin plate orders have been very satisfactory, and prices are firm at $5.50 per base box, Pittsburgh.

Structural Activity.—Inquiry is light, and awards only for small tonnages. There is much work in prospect, however. This district is apparently lagging, and lower prices for similar work are quoted here than in other sections of the country.

Reinforcing Bars.—Recent awards include: Lilly Hardware & Paint Co., Indianapolis, 600 tons to Kalman Steel Co.; Bethesda Hospital, Cincinnati, 250 tons, to Pollak Steel Co.; Groton Building, Cincinnati, 150 tons, to Bourne-Fuller Co. New inquiries appearing are topped by the Illinois Market House, Indianapolis, which requires 600 tons. Prices are fairly steady at 2c. for rail steel bars, to 2.10c. for new billet stock.

Tool Steel.—Sales are gradually increasing. Manufacturing activities in metal working plants are showing some improvement, and this will increase the demand, as manufacturers' stocks are very low. Prices are steady at a range of 70c. to $1 per lb. for 18 per cent tungsten high speed steel, depending on brand.

Warehouse Business.—Jobbers in the district report a decided improvement in sales during the past week, all items being included. Sales of wire and wire nails have been especially active, and jobbers have advanced prices of these commodities $2 per ton. Other prices firm and unchanged.

Cincinnati jobbers quote: Iron and steel bars, 3.30c.; reinforcing bars, 3.30c.; hoops, 4.35c.; bands, 3.95c.; shapes, 3.40c.; plates, 3.40c.; cold-rolled rounds, 4.05c.; cold-rolled flats, squares and hexagons, 4.55c.; open-hearth spring steel, 4.75c. to 5.75c.; No. 10 blue annealed sheets, 3.90c.; No. 28 black sheets, 4.60c.; No. 28 galvanized sheets, 5.75c.; No. 9 annealed wire, $3.25 per 100 lb.; common wire nails, $3.25 per keg base; cement coated nails, $2.65 per keg.

Finished Materials.—Buying is of the fill-in variety, and orders placed usually are for carload lots to 100 tons. Prices of bars, shapes and plates are firm, and there are some in the trade who expect an advance for second quarter contracts. Ruling prices today are 2.10c., Pittsburgh equivalent, for bars and shapes, with plates in some instances being quoted at 2c., Pittsburgh, though most companies are quoting 2.10c., Pittsburgh. There is a fair demand for wire products, with prices steady on the basis of $2.60 for plain wire and $2.85 for wire nails, f.o.b. Ironton. This price is being equalized by Pittsburgh district manufacturers. Bolts and nuts are showing some activity, and carload orders for spikes and other track accessories are more numerous. There is little activity in light rails, and prices nominally are quoted at 1.80c. to 1.90c., Pittsburgh basis.

Coke.—Foundry grades are in fair demand, and domestic is active. By-product producers have named prices for February contracts, unchanged from those now in effect.

Old Material.—The market is dull, and buying prices are off 50c. on all grades. Current activity is confined almost entirely to carload lots. Dealers believe the present lull in buying may continue for several weeks, but are confident that there will be a reaction when mills and foundries enter the market for second quarter supplies.

We quote dealers' buying prices, f.o.b. cars, Cincinnati:

	Per Gross Ton
Heavy melting steel	$16.50 to $17.00
Scrap rails for melting	16.00 to 16.50
Short rails	19.50 to 20.00
Relaying rails	30.50 to 31.00
Rails for rolling	18.00 to 18.50
Old car wheels	15.50 to 16.00
No. 1 locomotive tires	18.50 to 19.00
Railroad malleable	18.50 to 19.00
Agricultural malleable	17.50 to 18.00
Loose sheet clippings	13.00 to 13.50
Champion bundled sheets	14.00 to 14.50
	Per Net Ton
Cast iron borings	12.50 to 13.00
Machine shop turnings	11.50 to 12.00
No. 1 machinery cast	19.50 to 20.00
No. 1 railroad cast	17.00 to 17.50
Iron axles	23.00 to 23.50
No. 1 railroad wrought	13.50 to 14.00
Pipes and flues	10.00 to 10.50
No. 1 busheling	12.00 to 12.50
Mixed busheling	9.50 to 10.00
Burnt cast	12.00 to 12.50
Stove plate	12.00 to 12.50
Brake shoes	13.50 to 14.00

Boston

Very Little Buying of Pig Iron—Scrap Market Weak

BOSTON, Jan. 27.—Pig iron buying dropped to a minimum the past week, and the largest new inquiry in the market is one for 600 tons of malleable from a local manufacturer of pipe fittings. It develops that a Massachusetts heater manufacturer recently bought 3000 tons of No. 2 plain second quarter iron, instead of 3500 tons, as first reported, 1000 tons each of eastern Pennsylvania, Indian and Buffalo. The company is still uncovered on 2000 tons, and a textile machinery maker has yet to buy a round tonnage of No. 2X and No. 1X second quarter iron. Less interest is shown in foreign iron, which may not be the market factor anticipated, due to uncertain deliveries. Indian, silicon 2.50 to 3, today is generally $25 to $25.50 on dock Boston, duty paid, but is shaded on certain inland rail freights. Continental iron is about 25c. a ton cheaper than Indian, while Dutch is offered 50c. a ton or more under Indian. New York State iron is $23 furnace base, western Pennsylvania $24 base and eastern Pennsylvania, Virginia and Alabama the same as a week ago.

We quote delivered prices on the basis of the latest reported sales as follows having added $3.65 freight from eastern Pennsylvania, $4.91 from Buffalo, $5.92 from Virginia and $9.60 from Alabama:

East. Penn., sil. 1.75 to 2.25	$27.15 to $27.65
East. Penn. sil. 2.25 to 2.75	27.65 to 28.15
Buffalo, sil 1.75 to 2.25	27.41 to 27.91
Buffalo, sil. 2.25 to 2.75	27.91 to 28.41
Virginia, sil. 1.75 to 2.25	29.92 to 30.92
Virginia, sil. 2.25 to 2.75	30.42 to 31.42
Alabama, sil. 1.75 to 2.25	29.60 to 30.10
Alabama, sil. 2.25 to 2.75	30.10 to 30.60

Shapes and Plates.—Shapes are now quoted here at $2.56½ per 100 lb. delivered or 2.20c., Pittsburgh base, contrasted with $2.36½ to $2.46½ delivered, or 2c. to 2.10c., Pittsburgh base, heretofore. Plates are mostly $2.51½ per 100 lb. delivered or 2.15c., Pittsburgh base. The Boston Bridge Works, Boston, was the low bidder on 625 tons of fabricated steel for the indoor sports

building for the University of Maine, but no award has been made.

Freight Rates.—The Boston & Albany Railroad, effective Feb. 16, will absorb the Boston switching charge on all shipments of foreign iron over its lines from Boston to Worcester, Mass., and make a flat rate of $1.89 per ton on such consignments. The local switching charge is $5 per car. The company proposed to announce similar action on shipments to other New England, Boston & Albany Railroad delivery points as soon as possible. Local switching charges are a heavy burden on some users of raw material. For instance, it costs something like $20 to switch a car of foundry coke from Everett, Mass., to South Boston, a distance of a very few miles.

Coke.—By-product foundry coke is in slightly freer demand, partly as a result of an improvement in the weekly melt of iron by jobbing plants. Shipments are still irregular and therefore uncertain owing to the heavy drain on coke producers for crushed kinds. For fuel to be shipped out of New England, the market is slightly higher, that fact being taken as an indication that foundry coke will cost more in February. By-product foundry coke today is $11.50 a ton delivered in New England.

Old Material.—Cancellations, rejections and hold-ups on shipments by steel mills have demoralized the old material market. Virtually the only buying of heavy melting steel going on is for eastern Pennsylvania delivery at $13.50 on cars shipping point or $18 delivered, representing a drop of $2 a ton for the week and $2.50 the past fortnight. Scrap rails have depreciated as much in value, while offers on rails for rerolling and bundled cotton ties by buyers are all of $1.50 a ton less than a week ago. Railroad and yard wrought, wrought pipe and chemical borings have declined $1 a ton in price, and all other material, with the exception of shafting and street car axles, which are unchanged, easily 50c. Dealers here attribute the slump in old material to the open winter, permitting steady heavy shipments to consumers, and to the uncertainty in the outlook for finished steel products. It is believed comparatively little old material remains unsold in this territory. Any improvement in the demand for material would therefore be quickly reflected in prices here.

The following prices are for gross ton lots delivered consuming points:

No. 1 machinery cast	$19.50 to $20.00
No. 2 machinery cast	17.00 to 18.00
Stove plates	15.50 to 16.00
Railroad malleable	20.00 to 20.50

The following prices are offered per gross ton lots, f.o.b. Boston rate shipping points:

No. 1 heavy melting steel	$13.50 to $14.00
No. 1 railroad wrought	15.50 to 16.00
No. 1 yard wrought	14.50 to 15.00
Wrought pipe (1-in. in diam., over 2 ft. long)	12.50 to 13.00
Machine shop turnings	11.00 to 11.50
Cast iron borings, chemical	15.00 to 15.50
Cast iron borings, rolling mill	11.00 to 11.50
Blast furnace borings and turnings	9.00 to 9.50
Forged scrap	11.50 to 12.00
Bundled skeleton	11.50 to 12.00
Bundled cotton ties	10.00 to 10.50
Forged flashings	11.50 to 12.00
Shafting	19.50 to 20.00
Street car axles	19.00 to 19.50
Rails for rerolling	15.00 to 15.50
Scrap rails	13.50 to 14.00

Buffalo

Pig Iron Market Quiet—Dealers Buying Scrap for Steel Company

BUFFALO, Jan. 27.—The pig iron market is undergoing a period of quietness which makers believe may last for the next few weeks, but the price continues very firm and there is no sign of weakness. The inquiry for the week was about 5000 tons. One was for 1000 to 2000 tons of foundry for the second quarter from a Massachusetts consumer. Another inquiry was for 1000 tons of malleable from a down State consumer. Two Buffalo furnaces each took 500 tons of this. One local furnace sold a total of 3000 tons for the week. The price of $23 is not being shaded according to the furnace interests now making iron, and it is possible that the rumors of $22.50 spring from a comparatively small tonnage of resale offered, as indicated some weeks ago, "from the bank." The silicons are being maintained, according to the furnace operators. The Hanna Furnace Co. has blown in its third furnace, making 17 stacks now operating in this district.

We quote prices f.o.b. gross ton, Buffalo, as follows:

No. 2 plain, sil. 1.75 to 2.25	$23.00
No. 2X foundry, sil. 2.25 to 2.75	23.50
No. 1 foundry, sil. 2.75 to 3.25	24.50
Malleable, sil. up to 2.25	23.00
Basic	23.00
Lake Superior charcoal	29.28

Finished Iron and Steel.—Steel mills continue to strike a high clip of operation, ranging from 80 per cent to as near capacity as it is possible to obtain. Demand for steel bars is reported to be improving with the delivered price firm at 2.365c. and prospects for an increase fair. Sheet makers are asking 3.60c. for black and 4.75c. for galvanized. Demand is good. Local demand for reinforcing bars has fallen off, but Pennsylvania inquiries for road-mesh total 2000 tons. Wire demand is strong and general in its scope with the exception of netting. Jobbers seem to be loaded up on this grade and are not inquiring. A local fabricator reports a 100-ton job in Springfield, Mass.

Old Material.—There has been no new buying of sizable proportions within the past week. Dealers are buying to fill the Bethlehem order for heavy melting steel, and competition has developed. Most of the dealers will have business for the next month or two as a result of the order. Many dealers holding large stocks for higher prices have been compelled to let go their holdings in view of the purchase made at the Lackawanna works. A Weirton demand for heavy melting steel has developed with $22 offered at that consuming point. The Cleveland demand for turnings holds out with the steel company-consumer there offering $17.50, Cleveland. Youngstown quotations of $22 to $22.50 for heavy melting steel are of no interest just now to dealers who are filling the local order. A little buying of malleable has developed with $21 to $21.50 being paid. Some cast scrap has been sold around $19. The stove plate consumer which had been seeking material has retired from the market.

We quote f.o.b. gross ton, Buffalo, as follows:

Heavy melting steel	$19.50 to $20.00
Low phosphorus, 0.04 and under	22.50 to 23.50
No. 1 railroad wrought	16.50 to 17.00
Car wheels	20.50 to 21.00
Machine shop turnings	15.00 to 15.50
Cast iron borings	14.50 to 15.00
No. 1 busheling	18.50 to 19.50
Stove plate	16.50 to 17.00
Grate bars	14.50 to 15.00
Bundled sheets	14.00 to 15.00
Hydraulic compressed	18.50 to 19.00
Railroad malleable	20.50 to 21.00
No. 1 machinery cast	18.50 to 19.00
Iron axles	30.50 to 31.50
Steel axles	20.50 to 21.00

Birmingham

Expected Buying of Pig Iron Fails to Develop —Pipe Active

BIRMINGHAM, ALA., Jan. 27.—A few scattering sales of pig iron are reported by Southern furnace interests for the second quarter of the year, but the buying, heretofore stated as being imminent, has not set in. Sales in small lots are still frequent for first quarter delivery and warrant a reiteration of the statement by furnace operators that the probable make is being absorbed. Quotations for pig iron in the Birmingham district are $20 to $21 per ton, No. 2 foundry, with more than 1000 tons sold at the latter price. Apparently the furnace interests selling into the second quarter so far have obtained $21. The two blast furnaces scheduled to go into operation yet this month will produce basic iron for the company's own use.

We quote per gross ton, f.o.b. Birmingham district furnaces, as follows:

No. 2 foundry, 1.75 to 2.25 sil.	$20.00 to $21.00
No. 1 foundry, 2.25 to 2.75 sil.	20.50 to 21.50
Basic	20.00 to 20.50
Charcoal, warm blast	30.00

Steel.—Further activity in the steel market is reported in this section. Demand for semi-finished steel has increased materially and some is being brought into the Birmingham district. Wire and nails have continued active since just before the turn of the year and a lull for a few days has been forgotten already and additional buying is under way. Steel bars are quoted 2.25c., Birmingham.

Coke.—Continued improvement in demand for coke is again reported, but prices do not move one way or the other, holding at $4.50 to $5 for foundry product. More coke is being shipped from the district now than for some time.

Cast Iron Pipe.—Cast iron pressure pipe has been sold in quantity for first quarter delivery by the several companies making that product in this district. The American Cast Iron Pipe Co. states that very marked activity has taken place in the pipe market during the past 30 days, a large tonnage has been taken by customers in all sections of the country and books have been closed for the first quarter on some of the more popular sizes. An incidental feature of the buying movement is the exceptional demand for the larger sizes of pipe from 12 in. to 24 in. as compared to the smaller sizes under 12 in. in diameter. There is intimation that pressure pipe prices will be greater for second quarter needs than for the present period. Quotations in the Birmingham district are still on the $40 per ton base, 6 in. and over.

Old Material.—The activity noted since the middle of December in the old material market in this district continues and sales of small tonnages are being made by dealers. Heavy melting and old steel rails were marked up the past week.

We quote per gross ton, f.o.b. Birmingham district yards, as follows:

Cast iron borings chemical	$15.00 to $16.00
Heavy melting steel	15.50 to 16.50
Railroad wrought	14.00 to 15.00
Steel axles	18.00 to 19.00
Iron axles	19.00 to 20.00
Steel rails	16.00 to 16.50
No. 1 cast	17.00 to 17.50
Tramcar wheels	17.00 to 17.50
Car wheels	16.00 to 17.00
Stove plate	15.00 to 16.00
Machine shop turnings	8.00 to 9.00
Cast iron borings	8.00 to 9.00
Rails for rolling	15.50 to 16.50

St. Louis

Good Outlook for Building—Little Buying of Pig Iron—Scrap Weak

ST. LOUIS, Jan. 27.—The only pig iron sale of consequence during the last week was 1200 tons of basic by the St. Louis Coke & Iron Co. to an East Side melter. About the only buying now is of carload lots for prompt shipment, a condition which likely will continue through the first quarter. Makers are fairly well sold up for first quarter. Melters still request shipments ahead of the contract schedule, the melt continuing at its recent high level. Operations have been resumed in stove plants and shops after closing for repairs and inventory. The market is firm at unchanged prices.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices $2.16 freight from Chicago, $3.28 from Florence and Sheffield (rail and water), $5.17 from Birmingham, all rail, and 81c. average switching charge from Granite City:

Northern fdy., sil. 1.75 to 2.25	$26.66
Northern malleable, sil. 1.75 to 2.25	26.66
Basic	26.66
Southern fdy. sil. 1.75 to 2.25 (rail)	$26.17 to 27.17
Southern fdy., sil. 1.75 to 2.25 rail and water)	24.28 to 25.28
Granite City iron, sil. 1.75 to 2.25	24.81 to 25.31

Finished Iron and Steel.—Announcements of new building enterprises indicate a good year in construction work. Fabricators are busily engaged, but they bought material some time ago, and will not make further purchases until some of the projects reach more definite shape. The Laclede Steel Co. got the contract for 700 tons of reinforcing bars for the Bell Telephone building. For the Roxana Petroleum Co. office building, 250 tons of reinforcing bars will be required. Recent advances are of no interest to the trade here, as most manufacturers of steel products purchased some time ago at lower prices than now prevail, and will await developments before further commitments.

For stock out of warehouse we quote: Soft steel bars, 3.15c. per lb.; iron bars, 3.15c.; structural shapes, 3.25c.; tank plates, 3.45c.; No. 10 blue annealed sheets, 3.90c.; No. 28 black sheets, cold rolled, one pass, 4.80c.; galvanized steel sheets, No. 28, 5.80c.; black corrugated sheets, 4.95c.; galvanized, 5.95c.; cold rolled rounds, shafting and screw stock, 3.95c.; structural rivets, 3.65c.; boiler rivets, 3.85c.; tank rivets, ⅞ in. diameter and smaller, 70 per cent off list; machine bolts 55 per cent; carriage bolts 50 per cent; lag screws, 60 per cent; hot pressed nuts, squares, $3.50; hexagons, blank or tapped, $4 off list.

Coke.—Continued cold weather has caused a better demand for both domestic and industrial grades of coke. The consumption of foundry coke has increased considerably since the resumption of operations of plants that had closed for inventory and repairs. Buying is mostly from by-product producers in the district.

Old Material.—The market for old materials is irregular. While heavy melting steel, heavy shoveling steel and frogs, switches and guards cut apart are 50c. less than last week, other items are unchanged. As a whole the market is weak, largely as the result of heavier offerings than the buying by consumers warrants. Consumers in the district are doing a good business, and it is expected that they will shortly be forced to buy material. Railroad lists include: Burlington, 1700 tons; Union Pacific, 1500 tons, and St. Louis Southwestern, 4000 tons.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

Per Gross Ton	
Iron rails	$17.50 to $18.00
Rails for rolling	21.50 to 22.00
Steel rails less than 3 ft.	21.50 to 22.00
Relaying rails, 60 lb. and under	25.00 to 26.00
Relaying rails, 70 lb. and over	32.50 to 33.50
Cast iron car wheels	21.00 to 21.50
Heavy melting steel	17.00 to 17.50
Heavy shoveling steel	17.00 to 17.50
Frogs, switches and guards cut apart	17.50 to 18.00
Railroad springs	22.00 to 22.50
Heavy axles and tire turnings	14.00 to 14.50
No. 1 locomotive tires	20.00 to 20.50
Per Net Ton	
Steel angle bars	17.50 to 18.00
Steel car axles	21.00 to 21.50
Iron car axles	26.00 to 26.50
Wrought iron bars and transoms	21.00 to 21.50
No. 1 railroad wrought	16.00 to 16.25
No. 2 railroad wrought	16.00 to 16.50
Cast iron borings	12.50 to 13.00
No. 1 busheling	16.50 to 17.00
No. 1 railroad cast	18.25 to 18.75
No. 1 machinery cast	19.50 to 20.00
Railroad malleable	17.00 to 17.50
Machine shop turnings	9.50 to 10.00
Champion bundled sheets	10.00 to 10.50

San Francisco

General Business Active—Pig Iron Quiet—Prices Firm

SAN FRANCISCO, Jan. 24.—Among developments of the past week was the State-wide steel industry conference at Del Monte from which are expected far-reaching and constructive effects throughout the entire Pacific Coast. General business is active, prices firm and orders for second quarter delivery beginning to be placed.

Pig Iron.—Interest is limited. The Southern Pacific has contracted for 850 tons of Utah foundry, specifying initial deliveries in March. Small orders for Continental iron continue. Prices are firm and unchanged.

	Per Ton
*Utah basic	$27.25 to $28.25
*Utah foundry, sil. 1.75 to 2.25	27.50 to 28.50
**Scotch foundry	29.50 to 30.00
**English foundry	28.50 to 30.00
**Belgium foundry	26.00 to 28.00
**Indian foundry	26.00 to 28.00
*Dutch foundry	26.00
*Birmingham, Ala., foundry, sil. 2.75 to 3.25	31.00

*Delivered in San Francisco.
**Duty paid, f.o.b. cars, San Francisco.

Bars and Pipe.—The Badt-Falk Co. took 250 tons of reinforcing bars for Alamo school. The Pacific Pipe & Supply Co. will furnish 1162 tons of French pipe 6 to 12 in., Class B, C, D, to Glendale, Cal.

Shapes and Plates.—There is continued activity in structural shapes and plates. Prevailing prices are 2.50c. to 2.56c. c.i.f. The Associated Oil Co., Monterey, has awarded 125 tons of plates for a tank to the Western Pipe & Steel Co. Contracts for shapes include 1900 tons for the Women's Club to Dyer Brothers and the Golden West Iron Works, and 750 tons for the Bulletin Building, to the Schrader Iron Works. Warehouses quote:

Merchant bars, $3.15 base, per 100 lb.; soft steel bands, $4 base per 100 lb.; angles, ¼ in. and larger x 1½ in. to 2¾ in., inc., $3.15 base, per 100 lb.; channels and tees, ¾ in. to 2¾ in., inc., $3.75 base, per 100 lb.; angles, beams and channels, 3 in. and larger, $3.15 base, per 100 lb.; tees, 3 in. and larger, $3.35 base, per 100 lb.; universal mill plates, ¼ in., and heavier, stock lengths, $3.15 base, per 100 lb.; spring steel, ¼ in. and thicker, $6.15 base, per 100 lb.; No. 10 blue annealed sheets, $4.20 base, per 100 lb.; No. 28 black sheets, $5.25 base, per 100 lb.; No. 28 galvanized sheets, $6.25 base, per 100 lb.; No. 28 galvanized corrugated sheets, $6.30 base, per 100 lb.

Cleveland

Shipments to Some Plants Seem to Exceed Requirements—Lake Vessel Ordered

CLEVELAND, Jan. 27.—Shipments of steel on contracts appear to be in excess of the current requirements of some consumers, as is evidenced by the rather limited increase in plant operations. This indicates that manufacturing plants in some lines are accumulating stocks, being willing to take in the material because it was purchased lower than present prices and expecting a gradual increase in their steel consumption. While there has been some holding back in specifications, particularly on sheets, most of the mills report a good volume of specifications against contracts and some of the larger producers state that the tonnage booked in January will equal and possibly slightly exceed their December orders. A fair volume of small lot business continues to come out and mills have received a number of inquiries for second quarter contracts on which they have declined to quote.

The Oglebay-Norton Co., Cleveland, through its allied vessel interest, the Columbia Steamship Co., has placed a 618-ft. ore boat with the Great Lakes Engineering Works, Detroit. This will require 5000 tons of plates and structural material, which will be furnished by the Jones & Laughlin Steel Corporation. Reports from Detroit indicate that nearly all the automobile plants are slowly increasing production and have increased their releases to parts makers. Automobile makers have been very cautious in making steel commitments, but specifications from this source are expected to be larger in February. Production of the Fordson tractor is scheduled to increase from 300 to 400 per day next month because of the receipt of a large Russian order.

The weakness in coke has tended to halt any further general advance in pig iron prices and to hold the Valley price to $22.50 on foundry grades. However, one Cleveland maker has advanced the price 50c. for Cleveland delivery, establishing the price at $24 for shipment in the Cleveland switching district.

Pig Iron.—The lull in buying has become more pronounced. While some business in foundry and malleable iron is still being booked for the second quarter, a very small number of consumers have covered for that delivery and most foundries seem disposed to delay placing contracts. There is some demand for prompt shipment iron in small lots. One interest during the week sold 10,000 tons, including early shipment business and second quarter contracts, but sales by other local companies were light. Shipments on contracts are good. Automobile manufacturers are taking all the iron they have contracted for and production foundries that specialize on automobile castings have increased shipping orders, although these plants are not yet under good production. The demand from manufacturers of heating equipment is heavy, sales during the week including about 1500 tons taken by Akron furnace makers. Implement manufacturers are not taking much iron. Business is good with foundries allied with the tire industry. In Cleveland, jobbing foundries are operating at about 65 per cent of their capacity, a fair gain over December. The market shows strength without any change in price. Lake producers, including Cleveland furnaces, quote foundry and malleable iron at $23, which is the prevailing price in Michigan. Efforts to get a higher price have not proved very successful. In the Valley district a $22.50 price is still appearing. This developed during the week when Cleveland furnaces lost some business in Akron on which they quoted $23, although they have a freight advantage to this point over Valley producers. Steel making iron is inactive. Recent competition of foreign low phosphorus iron at seaboard apparently is being reflected in the eagerness of Eastern furnaces to find a Western market. A Milwaukee foundry has purchased 500 tons of low phosphorus iron from an Eastern furnace at a price equivalent to about $28 Valley furnace or $1 a ton below the Valley price.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a $3.02 freight rate from Jackson and $6 rate from Birmingham:

Basic, Valley furnace	$22.00 to $22.50
N'th'n No. 2 fdy., sil. 1.75 to 2.25	24.25 to 24.50
Southern fdy., sil. 1.75 to 2.25	26.01 to 26.51
Malleable	24.25 to 24.50
Ohio silvery, 8 per cent	33.52
Standard low phos., Valley furnace	29.00

Iron Ore.—Consumers are not urging the naming of prices for the season and with the quieting down of the pig iron market many do not look for the fixing of prices for some time. The more generally expressed opinion is that prices will be advanced 50c. a ton. Two round lot inquiries for dock ore developed recently. One was for 50,000 tons of Bessemer ore, which was secured by trade arrangement with another consumer, and the other was for 20,000 tons of non-Bessemer ore.

Semi-Finished Steel.—A Cleveland consumer has placed 8000 tons of wire rods at the regular price of $48, Cleveland. Specifications on sheet bars continue heavy, but no new business is pending. The market is firm. A local mill is holding to $40 on sheet bars, billets and slabs.

Rails.—The distribution of the rail purchase of 21,500 tons by the Nickel Plate Railroad reported last week has been made public. Slightly over 50 per cent was placed with the Steel Corporation mills, the Carnegie Steel Co. and the Illinois Steel Co., and the remainder was equally divided between the Bethlehem and Inland Steel companies. The track fastenings have not yet been placed. This rail purchase covers the requirements of the Nickel Plate, Clover Leaf and Lake Erie & Western railroads. The Wheeling & Lake Erie Railroad has placed 2000 tons of rails with the Carnegie Steel Co.

Sheets.—Specifications against contracts so far this month have been disappointing and there is little new buying. Weakness has developed in auto body sheets, which are being offered at 4.60c. or a $3 a ton concession. Black sheets are still irregular with orders being sought at 3.50c. Blue annealed and galvanized sheets are firm. The Trumbull Steel Co., Warren, Ohio, Monday advanced prices $2 a ton to 3.70c. a ton for black, 2.80c. for blue annealed and 4.85c. for galvanized. If the market becomes established at these prices it will mean an advance of $4 a ton for the second quarter, as consumers generally covered for the first quarter before the last $2 a ton price advance was placed in effect.

Strip Steel.—Most mills are now comfortably filled with orders, but the market on wide hot-rolled strip continues irregular with a range of 2.25c. to 2.40c. in base prices, but with a net price of around 2.35c. appearing. On cold-rolled strip 4c., Cleveland, is the more common price. Hoops have strength in the local market with quotations ranging from 2.65c. to 2.75c. Bands are unchanged at 2.50c.

Screw Stock.—Weakness has developed in screw stock, which is being offered by a small independent

mill at 2.80c. as compared with the regular price of 2.85c., Cleveland.

Reinforcing Bars.—Inquiry includes 250 tons for a garage for the May Co., Cleveland. Rail steel bars are unchanged at from 1.90c. to 2c.

Wire Products.—New business and specifications for nails and wire have improved and local mills are well filled with orders. Mill prices are firm and there is some talk of an advance.

Bolts, Nuts and Rivets.—Makers of bolts and nuts continue to get a good volume of specifications on first quarter contracts and plants are being operated at 65 per cent or better of capacity. A good demand has developed for semi-finished hex nuts, specifications for which were light during the first half of the month. Prices are firm. Rivet specifications are fair, although not as heavy as they have been. New business is light, although a southern Ohio car company placed an order during the week for a 200 ton lot at the regular price.

Steel Bars, Plates and Structural Material.—Some of the other mills are expected to follow the lead of the Republic Iron & Steel Co., which Monday announced an advance of $2 a ton on steel bars and plates for the second quarter. Both Cleveland mills are holding to 2.10c. for tank plates, at which a fair volume of small lot business is being taken, but one is still quoting boiler steel at 2c. The 2c. price on plates is still being named by some of the larger mills. Inquiries include a 700-ton lot for car work for the Baltimore & Ohio Railroad. Steel bars and structural material are firm at 2.10c., Pittsburgh.

Jobbers quote steel bars, 3.10c.; plates and structural shapes, 3.20c.; No. 28 black sheets, 4.35c.; No. 28 galvanized sheets, 5.45c.; No. 10 blue annealed sheets, 3.45c. to 3.60c.; cold-rolled rounds, 4c.; flats, squares and hexagons, 4.50c.; hoops and bands, 1 in. and wider and 20 gage and heavier, 3.85c.; narrower than 1 in., all gages, 4.35c.; No. 9 annealed wire, $3.15 per 100 lb.; No. 9 galvanized wire, $3.60 per 100 lb.; common wire nails, $3.25 base per 100 lb.

Coke.—Prices on foundry coke are unchanged at $5 to $5.75 for standard Connellsville brands for prompt shipments and from $5.25 to $5.75 for contracts. The price of Ashland by-product coke for February will be unchanged at $6.50. The market is inactive.

Old Material.—The weakness in the market reported last week has continued and heavy melting steel and a number of other grades have further declined 25c. a ton. There is virtually no consumer demand, but another buying movement is expected early next month. Heavy melting steel is now quoted at $21 to $21.50 in the Valley district, although a small lot early in the week brought $21.75. Some of the larger yard dealers have about cleaned out their yard stocks this month. The movement is quite heavy, as consumers are not holding back on shipments.

We quote dealers' prices f.o.b. Cleveland per gross ton:

Heavy melting steel	$19.50 to $19.75
Rails for rolling	19.50 to 19.75
Rails under 3 ft.	22.00 to 22.50
Low phosphorus melting	22.00 to 22.25
Cast iron borings	16.25 to 16.50
Machine shop turnings	16.50 to 16.75
Mixed borings and short turnings	16.25 to 16.50
Compressed sheet steel	17.50 to 17.75
Railroad wrought	17.00 to 17.50
Railroad malleable	22.00 to 22.50
Light bundled sheet stampings	15.25 to 15.50
Steel axle turnings	18.00 to 18.50
No. 1 cast	19.75 to 20.00
No. 1 busheling	16.00 to 16.25
Drop forge flashings	14.75 to 15.00
Railroad grate bars	16.25 to 16.50
Stove plate	16.25 to 16.50
Pipes and flues	14.00 to 14.25

The Reliance Electric & Engineering Co., Cleveland, has completed plans for its plant addition, contract for which has been placed with the Austin Co., Cleveland. The extensions will include a one-story section with a saw tooth roof and a two-story section, both of mill type construction. Runways for a 3-ton traveling crane will be provided in both buildings. The one-story section will be used for machine shop and assembly departments and for finished stock storage. The two-story section will be devoted to the armature and coil winding departments.

Philadelphia

Fair Tonnage of Foreign Pig Iron Sold—Sheet Prices Advanced—Scrap Is Weak

PHILADELPHIA, Jan. 27.—Probably a fair average of current business is represented by the estimates that bookings of new orders are about 50 per cent of shipments on contracts. Apparently intent upon driving in as much tonnage as possible to maintain present operating rates into the second quarter, mills are beginning to advance prices on various products. Black, galvanized and blue annealed sheets have been generally advanced $2 a ton and a Pittsburgh and Youngstown independent has each advanced bars $2 a ton, one for second quarter delivery, the other for prompt and second quarter business. Despite the moderate rate at which new business is appearing, unofficial estimates that the Pennsylvania Railroad may spend $60,000,000 for repairs and equipment this year, increasing activity among tank and boiler makers, prospects of car purchasing by Eastern railroads and the low inventories of automobile manufacturers, which are probably not more than 10 days to two weeks ahead on stocks, are pointed to as indications that heavier buying should develop in the near future.

A less optimistic situation appears in the coke, pig iron and scrap markets. Domestic furnaces are beginning to feel the competition of imported iron, a large block of which went in the past week to fill the order of a New Jersey boiler manufacturer. The coke market following its recent upward movement, induced by the expectation of higher costs through wage increases, has quieted down to a lower level than predicted. The scrap market is unquestionably weak.

Pig Iron.—The outstanding transaction of the week was the purchase by the Burnham Boiler Co. of 3100 tons of iron for plants at Yonkers, N. Y., Elizabeth, N. J., and Lancaster, Pa. Fully two-thirds of the tonnage taken was foreign pig iron, close to 1500 tons of Indian iron and 500 tons or more of Dutch origin. The remaining 1000 tons or less was of domestic origin. The price is understood to have been between $24 and $24.50 a ton, delivered, for the No. 2X, and slightly better than $23, base, for the No. 2 plain. In view of the competition of the foreign product and the price of coke, which has not reached the high level expected as a result of the wage increases, there is a greater tendency to adhere to the $23.50 a ton base on foundry grades. The recent level of $24, base, however, is still maintained on small lots for prompt shipment, and as there is a lack of large tonnages to actually test the market, it is difficult to establish the minimum at which business might be done today. Basic continues inactive with other grades, but the price is considered firm.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rates varying from 76c. to $1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	$24.26 to $25.13
East. Pa. No. 2X, 2.25 to 2.75 sil.	25.01 to 25.88
East. Pa. No. 1X	26.01 to 26.88
Virginia No. 2 plain, 1.75 to 2.25 sil.	29.17 to 29.67
Virginia No. 2X, 2.25 to 2.75 sil.	29.67 to 30.17
Basic delivered eastern Pa.	24.25 to 24.75
Gray forge	24.00 to 24.50
Malleable	24.50 to 25.00
Standard low phos. (f.o.b. furnace)	25.50 to 26.50
Copper bearing low phos. (f.o.b. furnace)	25.50 to 26.00

Ferromanganese.—With most consumers covered well into the second quarter but little buying is reported. Quotations continue unchanged at $115 per ton, seaboard or domestic furnace.

Sheets.—Blue annealed, black and galvanized have been advanced $2 a ton. Blue annealed are now 2.80c. per lb., base Pittsburgh; black, 3.70c. per lb., and gal-

vanized, 3.85c. per lb., base. The greatest firmness is evident in blue annealed, of which sales have been fairly numerous, although confined to small tonnages.

Billets.—With most consumers fairly well covered for the first quarter, but little activity is evident. One lot of 1000 tons closed recently is understood to have brought the full $43, Pittsburgh, price quoted on forging billets. Rerolling billets are still quotable at $37.50 to $38 per ton, Pittsburgh.

Bars.—Eastern Pennsylvania mills continue to adhere to the 2.10c., Pittsburgh, basis despite a keen interest in the action of Chicago, Youngstown and Pittsburgh producers, who have in various instances gone to a higher level. New business is appearing in fair volume.

Shapes.—Awards of building projects continue small but are more numerous than in the past few weeks. A garage and service building for the Post Office at Forty-third and Woodruff Streets, Philadelphia, requiring 124 tons, went to the New York Shipbuilding Co. Mills are holding firmly to the 2c., Pittsburgh, minimum, and 2.10c. per lb. prevails on the less favorable tonnages.

Plates.—Improvement in the oil business is indicated by the greater activity of oil tanks, boilers for oil field use and similar equipment. The ship and boiler plates for the new Clyde Line steamship to be built by the Newport News Shipbuilding & Dry Dock Co., are reported to have been divided between the leading interest and an eastern Pennsylvania independent mill. Quotations on plates continue firm at 2c. to 2.10c. per lb., Pittsburgh, the higher price being for miscellaneous lots.

Old Material.—Practically all grades are off $1 a ton from the high point of a fortnight ago. An eastern Pennsylvania consumer of scrap has closed on a large tonnage of heavy melting steel at $18 per ton delivered. A smaller consumer has purchased a moderate tonnage at $19.75 per ton delivered. The market is not quotable today at higher than $18 to $19.50 per ton, delivered eastern Pennsylvania. A consumer of bundled sheets, machine shop turnings and stove plate has dropped his offering prices 50c. a ton on these grades, the second reduction of 50c. a ton in two weeks. As some advance purchasing of machine shop turnings by brokers is understood to have been done recently, the consumer is believed to be in a fair way to receive at least some tonnage at these prices. No. 1 cast has been sold at $20, but although $19 a ton was recently offered by one large consumer, no business was closed at this price. Buying of all grades is light.

We quote for delivery at consuming points in this district as follows:

No. 1 heavy melting steel	$18.00 to $19.50
Scrap rails	19.00 to 20.00
Steel rails for rolling	20.00 to 21.00
No. 1 low phos. heavy 0.04 and under	23.50 to 24.00
Couplers and knuckles	22.50 to 23.50
Rolled steel wheels	22.50 to 23.00
Cast-iron car wheels	19.50 to 20.00
No. 1 railroad wrought	20.50 to 21.00
No. 1 yard wrought	18.00 to 19.00
No. 1 forge fire	16.50 to 17.00
Bundled sheets (for steel works)	15.50 to 16.00
Mixed borings and turnings (for blast furnace use)	13.50 to 14.00
Machine shop turnings (for steel works use)	15.50 to 16.00
Machine shop turnings (for rolling mill use)	16.00 to 17.00
Heavy axle turnings (or equivalent)	17.00 to 18.00
Cast borings (for steel works and rolling mill)	16.00 to 16.50
Cast borings (for chemical plants)	19.50 to 20.00
No. 1 cast	19.50 to 20.00
Heavy breakable cast (for steel plants)	18.00 to 18.50
Railroad grate bars	17.00 to 18.00
Stove plate (for steel plant use)	15.50 to 16.00
Wrought iron and soft steel pipes and tubes (new specifications)	18.00 to 18.50
Shafting	24.50 to 25.00
Steel axles	25.00 to 25.50

Imports.—In the week ended Jan. 24 a total of 1013 tons of pig iron was received from India at the Port of Philadelphia. Iron ore imports totaled only 525 tons, all from Germany.

Canadian Scrap Market

TORONTO, ONT., Jan. 27.—Interest in the Canadian scrap market is becoming more general, but actual sales show very little improvement, being confined almost entirely to small tonnage lots for the immediate use of consumers. Foundry activities are somewhat better than they were at the close of last year, but taken on the whole they average only about 50 per cent, and according to the general trend of the iron and steel industry of this country it does not seem likely that any active buying movement will appear in the scrap market for about six weeks. Steel mills in the Sault Ste. Marie, Ont., and Sydney, N. S., districts are preparing their plants for increased operation, the latter having already started up additional departments, while the Algoma Steel Corporation is expected to resume activities about the middle of March. Dealers' buying prices are firm, as follows:

Gross Tons	Toronto	Montreal
Steel turnings	$11.00	$10.00
Machine shop turnings	11.00	9.00
Wrought pipe	7.00	8.00
No. 1 wrought scrap	13.00	13.00
Heavy melting steel	12.75	12.00
Steel axles	16.00	18.00
Axles, wrought iron	18.00	20.00
Net Tons		
Standard car wheels	16.00	16.00
Malleable scrap	14.00	16.00
Stove plate	14.00	13.00
No. 1 machinery cast	18.00	18.00

December Was a Good Month in Refractories

December was a good month in clay fire and silica brick business, according to the monthly report of the Refractories Manufacturers Association, just issued from the office of Frederick W. Donahoe, secretary, Oliver Building, Pittsburgh. Shipments of both kinds of brick for that month went well ahead of those for the month before and the price advances announced in December appear to have been very stimulating to new business. Clay fire brick advanced $3 per 1000 last month and there were two advances in silica brick, carrying that kind $7 per 1000 above the prices that had ruled during much of last year. Net new business in silica brick in December rose to 107 per cent of monthly economical producing capacity of those manufacturers reporting, as against 69 per cent in November and unfilled orders at the end of December were equal to 114 per cent of a month's production as compared with only 65 per cent at the end of November. Net new business in December in clay fire brick was 80 per cent of a month's production, against 66 per cent in November and a gain in unfilled orders of more than 18,000,000 9-in. straights in December was equal to 14 per cent. "Free" stocks, those which could be made to apply on new orders, still are fairly heavy, those in clay fire brick being equal to almost two months' shipments at the December rate, while such stocks of silica brick were equal at the end of December to almost a month's shipments at the December rate.

The detailed report in comparison with that for November, figures in parentheses being the percentage to monthly economical producing capacity, in 9-in. straights, follows:

Clay Fire Brick

	December	November
Capacity reporting	54,448,957	50,973,967
Stock first of month	155,803,107(296)	149,985,426(294)
Production	37,669,639(72)	33,593,564(66)
Shipments	35,783,791(68)	31,371,815(61)
Stock end of month	157,688,955(300)	152,207,175(298)
New orders	42,984,622(82)	36,136,479(71)
Cancellations	1,053,836(2)	2,519,995(5)
Net new business	41,930,786(80)	33,616,484(66)
Unfilled orders	45,231,395(86)	37,969,168(74)

Silica Brick

Capacity reporting	8,019,667	8,019,667
Stock first of month	10,276,569(127)	10,027,046(124)
Production	5,159,869(64)	3,723,870(46)
Shipments	4,712,718(58)	3,474,347(43)
Stock end of month	10,723,720(133)	10,276,569(127)
New orders	8,659,101(107)	5,636,232(70)
Cancellations	.....	51,020(1)
Net new business	8,659,101(107)	5,585,212(69)
Unfilled orders	9,189,128(114)	5,242,745(65)

Free Stocks

Clay fire brick	66,233,857	70,793,619
Silica brick	4,282,000	1,968,111

FABRICATED STEEL BUSINESS

Week's Awards Over 31,000 Tons Though Fresh Inquiries Drop to 14,000 Tons

Bookings of the past week in fabricated steel call for 31,000 tons in the case of the larger jobs on which reports were received, one-half the total being due to the Flushing bridge for New York, 7000 tons, and the Pennsylvania Railroad bridge at Steubenville, Ohio, 7500 tons. New projects appearing brought somewhat more than 14,000 tons into the market, which is marked by widely varying fabricated steel prices. Weekly purchases so far in January average over 35,000 tons and new inquiries over 25,000 tons. Among awards are the following:

Apartment house, 111-113 East Seventy-fifth Street, New York, Schwartz & Gross, architects, 320 tons, to Lehigh Structural Steel Co.

Public school No. 81, New York, 360 tons, to Lehigh Structural Steel Co.

John J. Hearn, New York, apartment house on West Fifty-seventh Street, 400 tons, to Harris Structural Steel Co.

Public school No. 116, New York, 420 tons, to Harris Structural Steel Co.

Flushing bridge, New York, 7000 tons, to McClintic-Marshall Co.

University of Maine, Orono, Me., memorial gymnasium, 600 tons, to Boston Bridge Works.

Apartment house, Boston, 250 tons, to New England Structural Steel Co.

Museum of Fine Arts, Boston, 250 tons, to New England Structural Steel Co.

New York Edison Co., Eighty-fourth Street substation, 250 tons, to Heddon Iron Construction Co.

Apartment building, Park Avenue and Seventy-fourth Street, New York, 750 tons, to Taylor-Fichter Steel Construction Co.

New York Edison Co., substation on Sixty-fourth Street, 200 tons, to Levering-Garrigues Co.

Office building, Maiden Lane, New York, 600 tons, to Levering & Garrigues Co.

High school, Norwood, Mass., 125 tons, to New England Structural Co.

Mercantile building, Pittsfield, Mass., 100 tons, to McClintic-Marshall Co.

Gilbert & Barker Mfg. Co., Springfield, Mass., 100 tons to Bancroft-Jones Corporation.

Pennsylvania Railroad, bridge at Steubenville, Ohio, 7500 tons, to American Bridge Co.

Drummond-Miller Co., Lorain, Ohio, office building, 260 tons, to Jones & Laughlin Steel Corporation.

Waverley Sanitarium, Louisville, Ky., 450 tons, to Louisville Bridge Co.

Champion Coated Paper Co., Hamilton, Ohio, 900 tons, to Indiana Bridge Co.

Louisville & Nashville Railroad, shops at Gentilly, La., 150 tons, to Grainger & Co.

Angel City ball park grandstand, Los Angeles, Cal., 1628 tons, to Llewellyn Iron Works.

C. A. Dunham Co., Chicago, 600 tons, to Hansell-Elcock Co.

Palace Theater, Gary, Ind., 466 tons, to American Bridge Co.

Vicksburg, Shreveport & Pacific Railway, Shreveport, La., Marshall Street bridge, 197 tons, to American Bridge Co.

Eli Lilly Co., Indianapolis, warehouse, 250 tons, to Insley Mfg. Co.

Eagles' Temple, Ballard, Wash., 108 tons, to Minneapolis Steel & Machinery Co.

Associated Oil Co., Monterey, Cal., 125 tons for tanks, to Western Pipe & Steel Co.

Women's Club, San Francisco, 1900 tons, to Dyer Brothers and Golden West Iron Works.

Bulletin building, San Francisco, 750 tons, to Schrader Iron Works.

Amusement building, Santa Monica, Cal., 360 tons, to Baker Iron Works.

Telephone building, Burlingame, Cal., 250 tons, to Ralston Iron Works.

Tacoma, Wash., Hylebos Creek bridge, 335 tons, to Puget Sound Iron & Steel Co.

Cleveland Electric Illuminating Co., transmission towers and substation, 2000 tons, to Blaw-Knox Co.

Mansfield, Ohio, high school, 300 tons, to Rochester Bridge Co.

Buckeye Tractor & Ditcher Co., Bucyrus, Ohio, 200 tons, to Donovan Wire & Iron Co.

Steel pier, Atlantic City, repairs, 100 tons, to New York Shipbuilding Co.

U. S. Post Office Department, Philadelphia, garage and service building, 124 tons, to New York Shipbuilding Co.

F. V. Warren Co., Philadelphia, addition to Hotel Chelsea, Atlantic City, 260 tons, reported awarded to New York Shipbuilding Co.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

South Carolina State Highway Department, bridge at Beaufort, S. C., 600 tons.

City of New York, Broadway and 173d Street section of subway, 200 tons, bids open Feb. 6.

Massachusetts-Mutual Life Insurance Co., Springfield, Mass., building, 3600 tons.

General Electric Co., Everett, Mass., storage building, 150 tons.

Pittsfield, Mass., store alterations, 180 tons.

Y. M. C. A. Hotel, Chicago, addition, 5000 tons.

Chicago, bridge at 101st Street and Calumet River, substructure, 108 tons, bids to be taken Jan. 28; superstructure, 1500 tons, bids to be taken Feb. 1.

Portland, Ore., Ross Island bridge, 1125 tons.

Atlantic Hotel, Chicago, 20-story addition, tonnage not estimated.

Chicago, bridge in connection with South Water Street improvement, 600 tons, general contract awarded to Great Lakes Dredge & Dock Co.

Racine, Wis., Mead Street bridge, appropriation made for specifications and plans, Jan. 20.

Beloit, Wis., Portland Avenue bridge over Rock River, J. B. Marsh Engineering Co. to prepare specifications.

Steubenville Pottery Co., Steubenville, Ohio, 250 tons.

Commercial building, Cleveland, Superior and Twelfth Streets, 200 tons.

Three schools in Buffalo, 600 tons.

RAILROAD EQUIPMENT BUYING

Buying of Cars and Locomotives Small—Pennsylvania Railroad Expected to Be Car Buyer

Car orders and inquiries reached a low level this week, purchases reported totaling only 42 cars and inquiries coming to 35. Inquiry for locomotives was slightly more active, reaching a total of 30, while 8 were purchased. Car builders are looking forward to activity of the Pennsylvania Railroad this year in the purchase of open-top cars and the New York Central is expected to appear as a prospective purchaser of 7000 to 8000 cars in the next few months.

The Grand Trunk Western has closed on 4 Mountain type locomotives with the Baldwin Locomotive Works.

The Chesapeake & Ohio has awarded 48 locomotive boilers and fire-boxes to the American Locomotive Co.

The Chicago, West Pullman & Southern has placed an 0-6-0 switching locomotive with the Baldwin Locomotive Works.

The Ararangua, Cia Santa Catharina Carbonifera De Brazil, has placed 3 Pacific type locomotives with the Baldwin Locomotive Works.

The Ford Motor Co. has placed 30 caboose cars with the Standard Steel Car Co.

The Carnegie Steel Co. has purchased 12 gondola cars, 70 tons capacity, from the Standard Steel Car Co.

The St. Louis-San Francisco is inquiring for 25 Mikado type and 5 Mountain type locomotives.

The National Plate Glass Co. is inquiring for 35 hopper cars.

Lukens Steel Co. Simplifies Extras

A new circular on plate extras issued by the Lukens Steel Co., Coatesville, Pa., does more of the engineer's work than has been usual in the past in the publication of extras. In addition to quoting the extras per 100 lb. instead of per lb. as formerly, a flat rate of 20c. per 100 lb. is quoted on cutting regular sketches and 50c. per 100 lb. on irregular sketches, instead of the previous method of 0.10c. per lb. and 0.20c. per lb. extra, plus standard card extras, with an additional charge for any waste.

Prices of Finished Iron and Steel Products (Carload Lots)

Tank Plates

F.o.b. Pittsburgh mill, base, per lb.....2c. to 2.20c.
F.o.b. Chicago, base, per lb.....2.30c.

Structural Shapes

F.o.b. Pittsburgh mills, base, per lb.....2.10c.
F.o.b. Chicago, base, per lb.....2.30c.

Iron and Steel Bars

Soft steel bars f.o.b. P'gh mills, base, per lb....2.10c. to 2.20c.
Soft steel bars f.o.b. Chicago, base, per lb.....2.20c.
Reinforcing steel bars f.o.b. P'gh mills, base, per lb. .....2.10c. to 2.20c.
Rail steel bars, f.o.b. Chicago district mills, base, per lb. 2.10c.
Common iron bars f.o.b. Chicago, base, per lb.....2c.
Refined iron bars f.o.b. P'gh mills, base, per lb..3.00c. to 3.10c.
Common iron bars, eastern Pa. mill, base, per lb.....2.10c.

Hot-Rolled Flats
(Pittsburgh)

Hoops, base, per lb.....2.50c.
Bands, base, per lb.....2.40c. to 2.50c.
Hoops and bands, narrower than 1-in., base per lb. 2.75c. to 3.75c.
Strips, 10 in. and wider, base, per lb.....2.25c. to 2.35c.
Strips, less than 10 in. wide to 3 in.....2.40c. to 2.50c.
Strips, 3 in. wide and less, base, per lb.....2.50c. to 2.60c.

Cold-Finished Steel

Screw stock and shafting, f.o.b. P'gh mills, base, per lb..2.80c.
Screw stock and shafting, f.o.b. Chicago, base, per lb..2.80c.
Screw stock, Worcester mills, base, per lb.....3.00c.
Screw stock, base, per lb., Cleveland.....2.85c.
Shafting, ground, f.o.b. mill, base, per lb.....3.20c.
Strips, f.o.b. P'gh mills, base, per lb.....4.00c. to 4.15c.
Strips, f.o.b. Cleveland mills, base, per lb.....4c to 4.15c.
Strips, f.o.b. Chicago mills, base, per lb.....4.45c.
Strips, f.o.b. Worcester mills, base, per lb.....4.30c.

Wire Products
(To jobbers in car lots f.o.b. Pittsburgh and Cleveland)

Nails, base, per keg..... $2.85
Galvanized nails, 1-in. and longer, base plus..... 2.25
Galvanized nails, shorter than 1-in., base plus..... 2.50
Bright plain wire, base, No. 9 gage, per 100 lb..... 2.60
Annealed fence wire, base, per 100 lb..... 2.75
Galvanized wire No. 9, base, per 100 lb..... 3.20
Galvanized barbed, base, per 100 lb..... 3.55
Galvanized staples, base, per keg..... 3.55
Painted barbed wire, base, per 100 lb..... 3.30
Polished staples, base, per keg..... 3.30
Cement coated nails, base, per count keg..... 2.25
*Bale ties, carloads to jobbers....75, 15 and 5 per cent off list
*Bale ties, carloads to retailers....75, 10 and 6 per cent off list
Woven wire fence, base, per net ton to retailers.....67.00

Chicago district mill prices are $2 per ton above the foregoing and Chicago delivered prices are $3 per ton above the prices f.o.b. Cleveland and Pittsburgh. Birmingham mill prices $3 a ton higher; Worcester, Mass., mills $3 a ton higher on production of that plant, and Duluth, Minn., mills $2 a ton higher; Anderson, Ind., $1 higher.

*F.o.b. Cleveland.

Sheets

Blue Annealed
(base) per lb.

Nos. 9 and 10, f.o.b. Pittsburgh dist. mill.....2.70c. to 2.80c.
Nos. 9 and 10 (base) per lb., f.o.b. Chicago dist. mills..2.80c.

Box Annealed, One Pass Cold Rolled

No. 28 (base) per lb., f.o.b. Pittsburgh dist. mill.3.60c. to 3.70c.
No. 28 (base) per lb., f.o.b. Chicago dist. mill.....3.70c.

Galvanized

No. 28 (base) per lb., f.o.b. Pittsburgh dist. mill.4.75c. to 4.85c.
No. 28 (base) per lb., f.o.b. Chicago dist. mill.....4.85c.

Tin-Mill Black Plate

No. 28 (base) per lb., f.o.b. Pittsburgh dist. mill.3.60c. to 3.70c.
No. 28 (base) per lb., f.o.b. Chicago dist. mill.....3.70c.

Automobile Body Sheets

No. 22 (base) per lb., f.o.b. mill.....4.75c.

Long Ternes

No. 28 (base) 8-lb. coating, per lb., f.o.b. mill.....4.90c.

Tin Plate

Standard cokes, per base box f.o.b. Pittsburgh district mills $5.50
Standard cokes, per base box f.o.b. Chicago district mills 5.60
Standard cokes, per base box f.o.b. Elwood, Ind..... 5.60

Terne Plate

(F.o.b. Morgantown or Pittsburgh)
(Per Package, 20 x 28 in.)

8-lb. coating, 100 lb. base $11.20	20-lb. coating I. C....$15.50
8-lb. coating I. C.... 11.50	25-lb. coating I. C.... 17.00
15-lb. Coating I. C.... 14.35	30-lb. coating I. C.... 18.35
	40-lb. coating I. C.... 20.35

Rivets

Large, f.o.b. P'gh and Cleveland mills, base, per 100 lb..$2.60
Large, f.o.b. Chicago, base, per 100 lb..... 2.75
Small, f.o.b. P'gh and Cleveland mills 70, 10 and 5 per cent off list
Small (freight allowed within zone limits) 70 and 10 to 70 off list

Rails and Track Equipment
(F.o.b. mill)

Rails, standard, per gross ton.....$43.00
Rails, light, billet, base, per lb.....1.80c. to 1.90c.
Rails, light rail steel, base, per lb.....1.65c. to 1.75c.
Spikes, ⅝ in. and larger, base, per 100 lb.....$2.90 to $3.20
Spikes, ½ in. and smaller, base, per 100 lb..... 3.00 to 3.50
Spikes, boat and barge, base, per 100 lb..... 3.25
Track bolts, all sizes, base, per 100 lb..... 3.80 to 4.25
Tie plates, per 100 lb..... 2.35 to 2.50
Angle bars, base, per 100 lb..... 2.75

Welded Pipe
(F.o.b. Pittsburgh district mills)

Butt Weld

Steel Inches	Black	Galv.	Iron Inches	Black	Galv.
⅛	45	19½	¼ to ⅜.....	+11	+39
¼ to ⅜.....	51	25½	½	22	2
½	56	42½	¾	28	11
¾	60	48½	1 to 1½.....	30	13
1 to 3.....	62	50½			

Lap Weld

2	55	43½	2	23	7
2½ to 6.....	59	47½	2½	26	11
7 and 8.....	56	43½	3 to 6.....	28	13
9 and 10...	54	41½	7 to 12.....	26	11
11 and 12...	53	40½			

Butt Weld, extra strong, plain ends

⅛	41	24½	2 to 3.....	61	50½
¼ to ⅜.....	47	30½	¼ to ⅜.....+11		+54
½	53	42½	½	21	7
¾	58	47½	¾	28	12
1 to 1½.....	60	49½	1 to 1½....	30	14

Lap Weld, extra strong, plain ends

2	53	42½	2	23	9
2½ to 4....	57	46½	2½ to 4.....	29	15
4½ to 6.....	56	45½	4½ to 6.....	28	14
7 to 8.....	52	39½	7 to 8.....	21	7
9 and 10....	45	32½	9 to 12.....	16	2
11 and 12...	44	31½			

To the large jobbing trade the above discounts are increased (on black) by one point, with supplementary discount of 5 per cent and (on galvanized) by 1½ points, with supplementary discount of 5 per cent.

NOTE—The above discounts on steel pipe also apply at Lorain and Youngstown, Ohio, and Wheeling, W. Va. Chicago district mills have a base 2 points less. Chicago delivered base 2½ points less.

Boiler Tubes
(F.o.b. Pittsburgh)

Lap Welded Steel		*Charcoal Iron*	
2 to 2¼ in.....	27	1½ in.....+18	
2½ to 2¾ in.....	37	1¾ to 1⅞ in.....+ 8	
3 in.....	40	2 to 2¼ in.....— 2	
3¼ to 3¾ in.....	42½	2½ to 3 in.....— 7	
4 to 13 in.....	46	3¼ to 4½ in.....— 9	

Beyond the above discounts, 5 fives extra are given on lap welded steel tubes and 2 tens on charcoal iron tubes.

Standard Commercial Seamless Boiler Tubes
Cold Drawn

1 in.....	55-58	3 and 3¼ in.....	36-39
1¼ and 1½ in.....	47-50	3½ and 3¾ in.....	37-40
1¾ in.....	31-34	4 in.....	41-44
2 and 2¼ in.....	22-25	4½ in. and 5 in.....	33-37
2½ to 2¾ in.....	32-35		

Hot Rolled

3 and 3¼ in.....	38-41	4 in.....	43-46
3½ in. and 3¾ in....	39-42		

Less carloads, 4 points less. Add $8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tube list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Mechanical Tubing

Carbon under 0.30 base.....85 to 87 per cent off list
Carbon 0.30 to 0.40 base.....83 to 85 per cent off list
Plus usual differentials and extra for cutting. Warehouse discounts range higher.

Seamless Locomotive and Superheater Tubes

Cents per Ft.		Cents per Ft.	
2-in. O.D. 12 gage....	15	2¼-in. O.D. 10 gage..	20
2-in. O.D. 11 gage....	16	3-in. O.D. 7 gage.....	35
2-in. O.D. 10 gage....	17	1½-in. O.D. 9 gage...	15
2¼-in. O.D. 12 gage..	17	5½-in. O.D. 9 gage...	55
2¼-in. O.D. 11 gage..	18	5½-in. O.D. 9 gage...	57

Prices of Iron and Steel Products and Raw Materials

Ores

Lake Superior Ores, Delivered Lower Lake Ports

Old range Bessemer, 55 per cent iron	$5.65
Old range non-Bessemer, 51½ per cent iron	4.90
Mesabi Bessemer, 55 per cent iron	5.40
Mesabi non-Bessemer, 51½ per cent iron	4.75
Foreign Ore, per Unit, c.i.f. Philadelphia or Baltimore	
Iron ore, low phos., copper free, 55 to 58 per cent iron in dry Spanish or Algerian	9.00c. to 9.50c.
Iron ore, Swedish, average 66 per cent iron	9.50c.
Manganese ore, washed, 51 per cent manganese, from the Caucusus, nominal	42c.
Manganese ore, ordinary, 48 per cent manganese from the Caucasus	40c.
Manganese ore, Brazilian or Indian, nominal	42c.
Tungsten ore, high grade, per unit, in 60 per cent concentrates	$8.75 to $9.00
Chrome ore, basic, 48 per cent Cr_2O_3, crude, per ton, c.i.f., Atlantic seaboard	18.50 to 24.00
Molybdenum ore, 85 per cent concentrates, per lb. of MoS_2, New York	80c.

Coke and Coal

(Per Net Ton)

Furnace coke, f.o.b. Connellsville prompt	$3.75 to $4.00
Foundry coke, f.o.b. Connellsville prompt	4.75 to 5.25
Mine run steam coal, f.o.b. W. Pa. mines	1.50 to 2.10
Mine run coking coal, f.o.b. W. Pa. mines	1.85 to 2.00
Mine run gas coal, f.o.b. W. Pa. mines	2.25
Steam slack, f.o.b. W. Pa. mines	1.30 to 1.40
Gas slack, f.o.b. W. Pa. mines	1.40 to 1.50

Ferroalloys

Ferromanganese, domestic, 80 per cent, furnace, or seaboard, per ton	$115.00
Ferromanganese, foreign, 80 per cent, f.o.b. Atlantic port, duty paid	110.00 to 115.00
Ferrosilicon, 50 per cent, delivered	82.50 to 85.00
Ferrosilicon, 75 per cent	145.00 to 147.50
Ferrotungsten, per lb. contained metal	90c. to 95c.
Ferrochromium, 4 per cent carbon and up, 60 to 70 per cent Cr., per lb. contained Cr. delivered	11.50c
Ferrovanadium, per lb. contained vanadium	$3.50 to $4.00
Ferrocarbontitanium, 15 to 18 per cent, per net ton	200.00

Spiegeleisen, Bessemer Ferrosilicon and Silvery Iron

(Per gross ton furnace unless otherwise stated.)

Spiegeleisen, domestic, 19 to 21 per cent	$33.00 to $34.00
Spiegeleisen, domestic, 16 to 19 per cent	32.00 to 33.00

Ferrosilicon, Bessemer, 10 per cent, $39.50; 11 per cent, $42; 12 per cent, $44.50; electric furnace ferrosilicon 10 to 11 per cent, $38, furnace, with an advance of $1 per unit for material above 10 per cent.

Silvery iron, 5 per cent, $27.00; 6 per cent, $28.00; 7 per cent, $29.00; 8 per cent, $30.50; 9 per cent, $32.50; 10 per cent, $34.50; 11 per cent, $37.00; 12 per cent, $39.50.

Fluxes and Refractories

Fluorspar, 80 per cent and over calcium fluoride, not over 5 per cent silica, per net ton, f.o.b. Illinois and Kentucky mines	$19.00
Fluorspar, 85 per cent and over calcium fluoride, not over 5 per cent silica, per net ton f.o.b. Illinois and Kentucky mines	20.00
Fluorspar, foreign, 85 per cent calcium, fluoride, not over 5 per cent silica, c.i.f. Philadelphia, duty paid, per net ton	18.00

Per 1000 f.o.b. works:

	High Duty	Moderate Duty
Fire Clay:		
Pennsylvania	$43.00 to $46.00	$40.00 to $43.00
Maryland	48.00 to 50.00	43.00 to 45.00
Ohio	43.00 to 46.00	40.00 to 43.00
Kentucky	43.00 to 45.00	40.00 to 43.00
Illinois	43.00 to 45.00	40.00 to 43.00
Missouri	45.00 to 48.00	38.00 to 43.00
Ground fire clay, per ton		6.50 to 7.50
Silica Brick:		
Pennsylvania		40.00
Chicago		49.00
Birmingham		54.00
Silica clay, per ton		8.00 to 9.00
Magnesite Brick:		
Standard size, per net ton (f.o.b. Baltimore and Chester, Pa.)		65.00
Grain magnesite, per net ton (f.o.b. Baltimore and Chester, Pa.)		40.00
Chrome Brick:		
Standard size, per net ton		45.00

Bolts and Nuts

Machine bolts, small rolled threads	60 and 10 per cent off list
Machine bolts, all sizes, cut threads	50, 10 and 10 per cent off list
Carriage bolts, smaller and shorter, rolled threads	50, 10 and 10 per cent off list
Carriage bolts, cut threads, all sizes	50 and 10 per cent off list
Eagle carriage bolts	65 and 10 per cent off list
Lag bolts	60, 10 and 10 per cent off list
Plow bolts, Nos. 1, 2 and 3 heads	50 and 10 per cent off list
Other style heads	20 per cent extra
Machine bolts, c.p.c. and t. nuts, ⅝ x 4 in. and smaller	45, 10 and 5 per cent off list
Larger and longer sizes	45, 10 and 5 per cent off list
Hot-pressed nuts, blank or tapped, square	4c. off list
Hot-pressed nuts, blank or tapped, hexagons	4.40c. off list
C.p.c. and t. square or hex. nuts, blank or tapped	4.10c. off list
Semi-finished hex. nuts:	
½ in. and smaller, U. S. S.	80, 10 and 5 per cent off list
⅝ in. and larger, U. S. S.	75, 10 and 5 per cent off list
Small sizes, S. A. E.	80, 10, 10 and 5 per cent off list
S. A. E., ⅝ in. and larger	75, 10, 10 and 5 per cent off list
Stove bolts in packages	80 and 5 per cent off list
Stove bolts in bulk	80 and 5 and 2½ per cent off list
Tire bolts	50, 10 and 5 per cent off list
Bolt ends with hot pressed nuts	50, 10 and10 per cent off list
Bolt ends with cold pressed nuts	45, 10 and 5 per cent off list
Washers	6c. to 5.50c. off list

The foregoing are delivered prices for 1000 lb. or over, except on stove and tire bolts on which a full freight allowance is made on 300 lb. or over, for shipment within established zone limits, buyers outside of the zone paying the additional freight. Washers and lock washers are quoted f.o.b. Chicago and Pittsburgh.

Semi-Finished Castellated and Slotted Nuts

(Prices delivered within specified territories)

(To jobbers and consumers in large quantities)

	Per 100 Net S. A. E.	Per 100 Net U. S. S.		Per 100 Net S. A. E.	Per 100 Net U. S. S.
¼-in.	$0.44	$0.44	⅝-in.	$2.35	$2.46
5/16-in.	.515	.515	⅞-in.	3.60	3.60
⅜-in.	.62	.66	1 in.	5.55	5.80
7/16-in.	.79	.90	1⅛ in.	8.90	8.90
½-in.	1.01	1.05	1¼ in.	12.60	13.10
9/16-in.	1.38	1.42	1⅜ in.	18.35	18.35
⅝-in.	1.70	1.73	1½ in.	21.00	21.00

Larger sizes—Prices on application.

Cap and Set Screws

(Freight allowed within zone limits)

Milled cap screws	80, 10 and 10 to 80 and 10 per cent off list
Milled standard set screws, case hardened	80, 10 and 10 to 80 and 10 per cent off list
Milled headless set screws, cut thread	80, 10 and 10 to 80 and 10 per cent off list
Upset hex. head cap screws, U. S. S. thread	80, 10, 10 and 10 per cent off list
Upset hex. head cap screws, S. A. E. thread	80, 10, 10 and 10 per cent off list
Milled studs	75 and 10 to 75 per cent off list

Semi-Finished Steel, f.o.b. Pittsburgh or Youngstown, per gross ton

Rolling billets, Bessemer, 4-in. and over	$37.00 to $38.00
Rolling billets, open-hearth, 4-in. and over	38.00 to 38.50
Forging billets, ordinary carbons	42.50
Sheet bars, Bessemer	38.00 to 39.00
Sheet bars, open-hearth	39.00 to 40.00
Slabs	37.00 to 38.00
*Wire rods, common soft, base, No. 5 to ⅜-in.	48.00
Wire rods, common soft, coarser than ⅜-in.	$2.50 over base
Wire rods, screw stock	$5.00 per ton over base
Wire rods, carbon 0.20 to 0.40	3.00 per ton over base
Wire rods, carbon 0.41 to 0.55	5.00 per ton over base
Wire rods, carbon 0.56 to 0.75	7.50 per ton over base
Wire rods, carbon over 0.75	10.00 per ton over base
Wire rods, acid	15.00 per ton over base
Skelp, grooved, per lb	2c.
Skelp, sheared, per lb	2c.
Skelp, universal, per lb	2c.

*Chicago mill base is $50. Cleveland mill base, $48.

Alloy Steel

(F.o.b. Pittsburgh or mill)

S. A. E. Series Numbers	Bars 100 lb.
2100* (1¼% Nickel, 10 to 20 per cent Carbon)	$3.00 to $3.25
2300 (3½% Nickel)	4.75
2500 (5% Nickel)	6.25 to 6.50
3100 (Nickel Chromium)	3.65
3200 (Nickel Chromium)	5.50
3300 (Nickel Chromium)	7.50 to 7.75
3400 (Nickel Chromium)	6.50 to 6.75
5100 (Chromium Steel)	3.50
5200* (Chromium Steel)	7.50 to 8.00
6100 (Chromium Vanadium bars)	4.25
6100 (Chromium Vanadium spring steel)	4.25
9250 (Silicon Manganese spring steel)	3.50
Carbon Vanadium (0.45 to 0.55 Carbon, 0.15 Vanadium)	4c.
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chromium, 0.15 Vanadium)	4.50
Chromium Molybdenum bars (0.80—1.10 Chromium, 0.25—0.40 Molybdenum)	4.25
Chromium Molybdenum bars (0.50—0.70 Chromium, 0.15—0.25 Molybdenum)	3.75
Chromium Molybdenum spring steel (1—1.25 Chromium, 0.30—0.50 Molybdenum)	4.75 to 5.00

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for cold drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10-in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4-in. down to and including 2½-in. squares, the price is $5 a gross ton above the 4 x 4 billet price.

*Not S.A.E. specifications, but numbered by manufacturers to conform to S.A.E. system.

PERSONAL

Arthur T. Clarage, son of the late E. T. Clarage, who was founder and first president of the Columbia Tool Steel Co., Chicago Heights, Ill., has been elected president of the company to succeed A. R. Waters, who is retiring. Mr. Waters also was one of the founders and has been active as general manager and president since the company's inception in 1904. Mr. Clarage has held many positions with the company and has been general manager and a director since 1920. He has been closely identified with the company's progress in recent years, both in the operation and sales department. As an operator he is known for original work in the application of the electric furnace for annealing tool steel. He has also given much attention to spoilage elimination, casting practice, raw material selection, etc. In maintenance of properties and general manufacturing policy he has been no small factor and in connection with sales, he has done considerable work of an educational nature, believing in its value on account of the highly technical nature of the product. Mr. Clarage received his education in Chicago technical schools, going to the company shortly after graduation. He is given charge as he completes his eleventh year with the company.

P. H. Seward, vice-president Richmond Radiator Co., with executive offices at 1480 Broadway, New York, has been elected president of the company in charge of the executive management. He has been prominently identified for many years with the heating, boiler and radiator industry and is a charter member of the American Society of Heating and Ventilating Engineers.

Col. Eugene C. Peck has retired from active management after service of nearly 25 years as general superintendent and later as works manager of the Cleveland Twist Drill Co., Cleveland. He will continue as a stockholder in the company and as a member of the board of directors.

Serving as a member of the American Engineering Standards Committee, as chairman of the Standardization Committee of the American Society of Mechanical Engineers and as vice-chairman of the National Screw Thread Commission he has been largely responsible for many much needed reforms in standards of practice. During the war, he held the rank of lieutenant-colonel and served as chief of the gage section of the Engineering Division of the United States Army, and was in charge of the very important work of design and procurement of gages for all ordnance material. Upon his retirement, F. F. Prentiss, vice-president, on behalf of the board of directors of the company presented Colonel Peck a watch and wrote him a letter expressing high appreciation of his valuable services.

Charles M. Schwab, chairman of directors of the Bethlehem Steel Corporation, sailed on Jan. 24 aboard the Olympic for a six-weeks' visit in France. When asked his view on the payment of France's war debt to the United States, Mr. Schwab said he could not favor cancellation since that would affect all international debts and produce an unfortunate precedent. He predicted that all steel companies would earn more this year than in 1924 and that the prices of steel products would regain the $10 a ton they lost last year. This is his sixty-seventh trip abroad.

George C. Hubbs, formerly assistant sales manager of the Dodge Brothers Motor Car Co., Detroit, has accepted the position of general sales manager of the Ajax Motors Co., Racine, Wis., a Nash interest which is equipping the former Mitchell plant in Racine for the production of popular priced passenger cars.

F. U. Conard, who has been chief engineer for the Underwood Computing Machine Co. in New York, has gone to Bridgeport, Conn., where he becomes general superintendent of plant No. 2 of the Underwood Typewriter Co.

W. K. Bailey, who has been Chicago district manager of the Warner & Swasey Co., Cleveland, for the past four years has been appointed Cleveland district manager to succeed C. H. Owen, who has resigned.

W. H. Wiewel recently resigned as assistant general manager of sales of the alloy division of the United Alloy Steel Corporation, Canton, Ohio, and has become connected with the Standard Seamless Tube Co., Pittsburgh.

A. V. Bodine, for the last two years assistant to the president of the Dictaphone Corporation in Bridgeport, Conn., has been elected vice-president in charge of manufacturing for the corporation.

E. W. Harrison of Philadelphia, long identified with the steel industry, has resumed his connection with the American Tube & Stamping Co., Bridgeport, Conn., after a trip abroad and a long vacation. Mr. Harrison will act as director of sales promotion and will have offices in the Franklin Trust Building, Philadelphia, after March 30.

L. T. Miller has been appointed purchasing agent of the Detroit Steel Products Co., Detroit, to succeed T. F. Thornton, who recently resigned to become president of the Roehm Steel Rolling Mills, Detroit. Mr. Miller has been known in purchasing circles for more than 15 years and goes to the Steel Products company from the Chevrolet Motor Car Co. Prior to that he was with Continental Motors, Inc., and the Elgin Motor Car Co.

C. A. Thomas was elected assistant secretary of the Mahoning Valley Steel Co., a non-integrated sheet mill interest operating an eight-mill plant at Niles, Ohio, at the yearly meeting last week.

C. E. Korns has been appointed general superintendent of the Portsmouth works, Wheeling Steel Corporation, to succeed, F. G. Crumley, off duty through failing health. Other changes include the appointment of A. B. Arganbright as superintendent of the inspection department to succeed Mr. Korns.

William E. Curran, who has been assistant superintendent of the by-product coke plant at Youngstown of the Republic Iron & Steel Co., has been appointed superintendent of the company's by-product coke works now under construction at Birmingham, Ala. The new plant will supply the company's coke requirements at the three blast furnaces in Birmingham. Mr. Curran already has assumed his new duties in the South.

S. H. Bunnell, consulting engineer, New York, left Jan. 28 for a few weeks' business trip to France and Germany.

W. D. Sargent, president Eastern Steel Castings, Newark, and chairman of the executive committee of the American Brake Shoe & Foundry Co., sailed for Europe this week. His itinerary includes a stay in Germany.

Marshall Post, manager of the Chester, Pa., plant of the American Steel Foundries for the past two years, and previous to that, general manager of that company's plants at Sharon, Pa., has been appointed general manager of the Birdsboro Foundry & Machine Co., Birdsboro, Pa.

G. V. Nightengale has resigned as sales engineer for the Cellite Products Co. to accept a position as sales engineer in the Philadelphia office of the Republic Flow Meters Co., Chicago.

Charles Anderson, vice-president and general manager Belle City Malleable Iron Co., Racine, Wis., who recently was elected president of the Racine Association of Commerce, has found it necessary to decline the office owing to the pressure of private business. The Belle City company is executing an $800,000 plant replacement program of five years which is now about 75 per cent completed.

David O. Thomas, who has been assistant general manager of the Saginaw Products Co., Saginaw, Mich. for the past two years, has been appointed general manager of the Muncie Products Co., Muncie, Ind. Both companies are subsidiaries of the General Mo-

tors Corporation, with which Mr. Thomas has been identified for several years, having been at one time general manager of the Saginaw Malleable Iron Co., a unit of the Saginaw Products Co.

A. C. Warn has been appointed assistant general manager of the Eclipse Interchangeable Counterbore Co., Detroit.

Samuel Mather and Harry Coulby, of Pickands, Mather & Co., Cleveland, sailed from New York on the Franconia, Jan. 22, on a trip around the world. They will be gone four months.

R. B. Randall, who for six years was Western sales manager of Blaw-Knox Co., has been appointed Western sales manager of the G. H. Williams Co., manufacturer of clam shell buckets, Erie, Pa., with headquarters in Chicago.

John B. Moss has resigned as assistant manager of the Worcester District, American Steel & Wire Co. He has been connected with the business 33 years as foreman of machine shop at the South Works, Worcester, foreman of blooming and rod mills and as assistant superintendent. He succeeded District Manager Clinton S. Marshall as superintendent of South Works and became assistant district manager in 1911.

Directors of the Bridge & Beach Mfg. Co., maker of furnaces, St. Louis, recently elected the following officers: Hudson E. Bridge, chairman of the board; L. H. Booch, president and manager; Henry C. Hoener, Laurence D. Bridge and George Leighton Bridge, vice-presidents; A. F. Gammeter, treasurer, and Louis H. Riecke, secretary.

C. C. Dornbush, structural steel department, Jones & Laughlin Steel Corporation, is the new chairman of the civil section, Engineers Society of Western Pennsylvania.

Willard C. Cato, formerly mechanical engineer with the Black Steel & Wire Co., manufacturer of wire and wire rope, Kansas City, Mo., has been made general superintendent.

The Morgan Engineering Co., Alliance, Ohio, announces the appointment of the following district representatives: C. O. Cromwell, 2230 First National Bank Building, Detroit; F. E. Bausch, 1105 Chemical Building, St. Louis; Duncan A. MacLeod, 918 Ellicott Square, Buffalo; R. R. Glover, 2310 Union Central Building, Cincinnati; W. R. McDonough & Co., First National Bank Building, Cleveland; McMullen Machinery Co., 64 Ionia Avenue, Grand Rapids, Mich.; Millholland Sales & Engineering Co., 225 Indiana Terminal Warehouse Building, Indianapolis; C. B. Davis Engineering Co., Brown-Marx Building, Birmingham, Ala.; P. I. Perkins Co., 110 High Street, Boston; Stewart H. Ford, Mutual Building, Richmond, Va.; Dravo-Doyle Co., Schaff Building, Philadelphia.

OBITUARY

ADOLPH E. BRION, chairman of directors and former president of Peter A. Frasse & Co., Inc., New York, died on Jan. 25. He was born in Brooklyn in 1863. In 1878 he went with Peter A. Frasse & Co. in a minor capacity. His advancement was rapid and in 1901 he was elected president of the company. During his administration considerable expansion was made. In 1916 he founded the Frasse Steel Works at Hartford, Conn., the largest mill of its kind in western New England. In September, 1924, he resigned as president owing to poor health and was elected chairman of the board of directors. He was a member of the American Iron and Steel Institute, and the Society of Automotive Engineers. He is survived by Mrs. Brion, a daughter and a son, Lester E. Brion, who succeeded his father as president of Peter A. Frasse & Co. His home was at Forest Hills, L. I.

A. E. BRION

ROBERT J. WILSON, founder and secretary of the Wilson-Snyder Mfg. Co., manufacturer of pumps, Braddock, Pa., died at his home in Pittsburgh, Jan. 20. He was born in Pittsburgh 76 years ago and for many years had been a prominent figure in the civic and industrial affairs of the city.

EDWARD S. WILES, one time superintendent of the Riverside works, National Tube Co., Benwood (Wheeling), W. Va., died at his old family home at Stony Point, N. Y., Jan. 18. He became identified in 1885 with the old Riverside Iron Works, which in 1900 was absorbed by the National Tube Co. At the time of the merger he was superintendent of the steel works and had a wide reputation as a maker of Bessemer steel. When the late Frank J. Hearne became president of the National Tube Co., soon after the formation of the United States Steel Corporation, Mr. Wiles was advanced to the position of Wheeling district superintendent of the National Tube Co. and held that position until 1903, when he resigned to go to the Colorado Fuel & Iron Co., of which Mr. Hearne at that time was president. He retired from active connection with the industry several years ago and in recent years had made his home at Stony Point, N. Y.

HARRY R. KIMMEL, chief chemist of the Marion Steam Shovel Co., Marion, Ohio, died Jan. 19 at Kalamazoo, Mich., aged 46 years. He was a graduate of the Case School of Applied Science, Cleveland.

HARRY W. TIMMINS, proprietor of the machinery and specialty machinery manufacturing plant at Buffalo bearing his name, died at his home in that city Jan. 20, following a sudden illness. He was a member of the Engineering Society of Buffalo.

LEANDER C. BELCHER, treasurer Belcher & Loomis Hardware Co., Providence, R. I., died at his home in that city Jan. 21. He had been active for over 65 years in New England hardware circles.

JOSEPH B. REUBER, founder of the Allentown Fence Works, now known as the Allentown Iron Works, Allentown, Pa., and a pioneer in the iron industry of that community, died at his home in Allentown, Jan. 20. He was born in Germany 77 years ago and for a short time after coming to this country was connected with the Allentown Rolling Mills. In 1902 he formed the fence works, and ten years later with his two sons he founded the Allentown Iron Works.

CHARLES HULL CLARK, president and founder of the Clark Brothers Bolt Co., Milldale, Conn., died at his home in Milldale on Jan. 17 in his ninety-third year. Born in the town in which he has always lived, Mr. Clark was educated in the Southington public schools and Lewis Academy. More than 70 years ago he and his two brothers, William and Henry Clark, founded the Clark company, one of the pioneer bolt manufacturers of the country. He worked as laborer, superintendent and president, having served in the latter capacity since the death of Henry Clark in 1906. He was deeply concerned in the affairs of the town of Southington, which he represented for several terms in the State legislature.

GEORGE A. WATERMAN, connected with the comptroller's department of the United States Steel Corporation, New York, for 23 years, died on Jan. 23 at his home in Westwood, N. J., aged 60 years. He was a brother of Fred M. Waterman, treasurer of the Steel Corporation.

NON-FERROUS METALS

The Week's Prices

Cents per Pound for Early Delivery

	Copper, New York		Straits Tin (Spot)	Lead		Zinc	
Jan.	Lake	Electrolytic*	New York	New York	St. Louis	New York	St. Louis
21....	15.12½	14.62½	56.00	10.15	9.75	8.00	7.65
22....	15.12½	14.50	56.50	10.00	9.75	7.95	7.60
23....	15.12½	14.50	57.62½	10.00	9.75	7.95	7.60
24....	15.12½	14.62½	....	10.00	9.75	7.95	7.60
26....	15.12½	14.62½	57.62½	10.00	9.75	8.00	7.65
27....	15.12½	14.62½	57.25	10.00	9.75	7.97½	7.62½

*Refinery quotation; delivered price ¼c. higher.

New York

NEW YORK, Jan. 27.

Quietness pervades all the markets. After a mild reaction copper is a little stronger. Tin has been bought moderately and prices are slightly higher. The lead market is considerably easier and prices have declined. Poor demand for zinc has resulted in lower values.

Copper.—A reaction of moderate intensity developed in the electrolytic copper market last week, so that the metal sold as low as 14.75c., delivered, but not in large quantities. It is explained that the decline was natural and not unexpected, partly because the advance to over 15c. had been rather too rapid. From the low point the market has again turned and is somewhat stronger, with most large producers quoting 15c., delivered, in the Connecticut valley, but with some metal still available from one or two sources at 14.87½c., delivered. One producer reports moderate sales yesterday at 15c., delivered in the valley, and 15.12½c. at Western points. In general, demand from consumers is not at all large and the market is characterized as sluggish. Some believe that consumers will soon buy for their second quarter needs. Sales thus far have been limited to first quarter and April delivery. Demand from foreign consumers is also exceedingly light and has been for two or three weeks. Lake copper is still fairly firm at 15.12½c., delivered.

Tin.—Buying of Straits tin has been only moderate in the week covered by this report. The largest business was done on Wednesday, Jan. 21, when at least 500 tons changed hands, most of it bought by one dealer and one consumer. Prices on that day showed a wide range, from 55.50c. in the morning to 56.25c. at the close, with sales made at 55.75c., 55.87½c. and 56c. during the day. On the following day about 200 to 250 tons changed hands in the morning, after which the market turned dull and on the next day a better tone, accompanied by light sales, prevailed. Yesterday the market was practically stagnant. One large importer characterizes the market unchanged in fundamentals and describes the recent slump in prices as due to a technical reaction in London which is not unusual. Spot Straits tin today was quoted at 57.25c., New York, in a quiet market, with sales totaling about 200 tons. Prices in London today were about £2 per ton higher than a week ago, with spot standard quoted at £261 15s., future standard at £265 and spot Straits at £265. The Singapore market yesterday was quoted at £268 10s. Arrivals thus far this month have been 8085 tons with 5715 tons reported afloat.

Lead.—The situation has eased decidedly, not so much from larger supplies of lead as from less insistence on the part of consumers. A decline in the London market was also reported to have been a factor. At any rate, the high premiums which have prevailed for several weeks have disappeared, the decline being initiated by a reduction by the leading interest in its contract price on Jan. 21 from 10.50c. to 10c., New York. The leading independent producer also reduced its selling price to 9.75c., St. Louis, and practically the entire market is now on this basis. Demand is light and further declines are not improbable since consumers have withdrawn from the market.

Zinc.—Influenced in part by the quietness and weakness in other markets, prime Western zinc has declined during the week to 7.62½c., St. Louis, or 7.97½c., New York. There is very little demand either for domestic or foreign consumption.

Nickel.—Shot and nickel in wholesale lots are quoted at 31c. to 32c. per lb., with electrolytic nickel quoted at 38c.

Antimony.—The situation is easier and Chinese metal is offered as low as 16.50c., New York, duty paid, for prompt delivery. Futures are higher.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is quoted at 27c. to 28c. per lb., delivered.

Old Metals.—Business is more active and values firm. Dealers' selling prices are as follows in cents per lb.:

Copper, heavy and crucible	14.50
Copper, heavy and wire	13.75
Copper, light and bottoms	11.75
Heavy machine composition	11.00
Brass, heavy	9.50
Brass, light	8.00
No. 1 red brass or composition turnings	10.25
No. 1 yellow rod brass turnings	10.00
Lead, heavy	9.00
Lead, tea	7.50
Zinc	5.25
Cast aluminum	19.00
Sheet aluminum	18.50

Chicago

JAN. 27.—Tin has shown some recovery but is still below what it was two weeks ago. Lead, zinc and antimony have undergone further declines. Copper remains unchanged and owes its strength to the absence of material in secondary hands. The decline in lead was not unexpected and still further recessions are looked for. Among the old metals grades of copper, brass and lead have declined. We quote, in carload lots: Lake copper, 15.25c.; tin, 59.25c.; lead, 9.75c.; spelter, 7.70c.; in less than carload lots, antimony, 18.50c. On old metals we quote copper wire, crucible shapes and copper clips, 12.50c.; copper bottoms, 10.50c.; red brass, 9.75c.; yellow brass, 8.25c.; lead pipe, 8.50c.; zinc, 5c.; pewter, No. 1, 30c.; tin foil, 42c.; block tin, 50c.; all buying prices for less than carload lots.

Census Report on Wire Production

Wire and wire products to the value of $460,067,185 were turned out by 113 establishments in 1923, according to figures of the Census Bureau. This output compares with $392,601,073 in 1919. Of the 1923 output $190,568,171 came from 64 independent wire drawing mills. Wire drawing departments of iron and steel rolling mills, to the number of 32, produced $217,844,264 in 1923. Seventeen wire drawing departments of other establishments, including brass and copper rolling mills and plants manufacturing electrical equipment, turned out $51,654,750 of products in 1923.

Expressed in net tons, the output of various kinds of wire and wire products in 1923 and 1921 follows:

	1923	1921
Iron and steel:		
Plain wire	3,205,245	1,725,360
Galvanized wire	952,498	529,678
Other coated wire	95,932	18,905
Cold-rolled flat wire	141,020	59,829
Wire nails and spikes (a)	868,780	564,893
Wire brads and tacks (a)	1,747	1,323
Wire staples (a)	31,309	20,868
Barbed wire, plain and coated (a)	253,950	139,081
Wire rope, cable and strand (a)	114,420	56,886
Woven fence and poultry netting, plain and coated (a)	413,212	242,292
Other woven-wire products (a)	14,986	22,801
Other wire products (a)	108,597	61,513
Copper: Bare wire	310,781	152,702
Brass wire	32,142	10,986

(a) Not including products made from purchased wire by establishments which do not draw wire.

Most of the plain and galvanized iron and steel wire produced was consumed in the plants of production; most of the bare copper wire produced was for sale. The figures in net tons follow:

	1923	1921
Iron and steel:		
Plain wire for sale	1,000,694	363,503
Plain wire consumed in works	2,204,551	1,361,857
Galvanized wire for sale	330,901	204,394
Galvanized wire consumed in works	621,597	325,284
Copper: Bare wire for sale	243,700	106,737
Copper wire consumed in works	67,081	45,965

NEW TRADE PUBLICATIONS

Transmission.—W. A. Jones Foundry & Machine Co., 4451 West Roosevelt Road, Chicago. Catalog 31 on Power Transmission Machinery has 80 pages covering shaft hangers, pillow blocks, couplings, collars, belt tighteners, mule stands, bench legs and other items. It is thoroughly illustrated and has tables of dimensions, clearances, weights and list prices for each of the many items mentioned.

Ball-Bearing Applications.—New Departure Mfg. Co., Bristol, Conn. Loose leaf pages Nos. 163 and 164 F.E. The former is devoted to electric arc welding machine application, and the latter to use of ball bearings in a centrifugal pulverizing and blending mill. A two-page table of contents, F.E. edition, revised to December, 1924, has been issued also. The sheets are for filing in the binder provided by the company.

Gas Boosters and Exhausters.—Connersville Blower Co., Connersville, Ind. Features of construction and outstanding applications of gas boosters, exhausters and rotary displacement meters are described in Catalog No. 22 of 72 pages, 9 x 12 in. The illustrations are for the most part of full page size and are placed on left-hand pages. Installations shown include several steel mills and many public service companies. The catalog is attractively arranged.

Lift Trucks.—Revolvator Co., 336 Garfield Avenue, Jersey City, N. J. Four-page illustrated circular outlining the features of the company's Liftruck, models D and H. A table of sizes, dimensions and capacities is given.

Resistors.—Monitor Controller Co., Baltimore. Bulletin No. 107, 8 pages, describing the new Monitor Edgewound resistor. It is for use with motor starters and speed controllers, and is adaptable also to service requiring an electrical resistor for relatively heavy currents. The device is claimed to be moisture-proof, acid resisting and to occupy minimum of space.

Electric Motors.—Diehl Mfg. Co., Elizabeth, N. J. Bulletin No. 1652, 12 pages, illustrating several industrial and marine applications of the company's motors. Applications include machine tools, compressors, blowers, pumps and other equipment.

Polyphase Motors.—Century Electric Co., St. Louis. Four-page circular describing and illustrating the stator and field winding assembly of the Century squirrel cage induction polyphase motors. Another circular of four pages is devoted to the bearing and oil well construction of these motors, and another to the armature construction.

Sheet Metal Machinery.—Magee Sheet Metal Machinery Co., 3916 Vermont Avenue, Detroit. Catalog No. 5, 42 pages, 6 x 9 in. The company's wiring and edging machine is described and illustrated and several pages are devoted to the assembling machine, which is known also as seaming machine or double-seamer. The wiring and edging unit will complete an operation which may be run on the edge of a piece of sheet metal in one pass, regardless of the contour or size of the sheet, or whether it is pressed or flat. Six attachments for nine operations, wiring, hemming, U-ing, hook-lock, X-lock, Y-lock, Z-lock, plain-lock and square edge, are described and illustrated. The change from one gage to another is made by changing rolls of the attachment, of which 250 different kinds are carried in stock.

Machine Tools.—Ateliers Demoor Société Anonyme, Brussels, Belgium. Catalog of 12 pages in French. Describes briefly and illustrates forging hammers, lathes, shapers, drill grinders, hacksaws and other tools.

Residence Water Supply Systems.—F. E. Myers & Brother Co., Ashland, Ohio. Catalog No. E25. Describes and illustrates the features and use of the company's electric house pumps and direct water supply systems for residences and small apartments. A new unit described is the Myers Junior which is self-contained, automatically controlled and is rated at 300 gal. per hr. The small floor space occupied is a feature. Wiring diagrams and tables of dimensions are included.

Water Heater.—Marion Machine, Foundry & Supply Co., Marion, Ind. Leaflet describing Gulf Stream water heater for factories, office and other buildings. The temperature of the water is controlled by a thermostat, and the device may be connected to a storage tank for supplying large quantities of hot water. Three sizes are available.

Sheet Metal Equipment for Schools.—Niagara Machine & Tool Works, Buffalo. Circular No. 103, eight pages. Issued to promote sheet metal working courses in vocational schools. Five plans of sheet metal shops for large, medium and small classes, one for composite shop in which sheet metal working is combined with some other subject, and another for a general shop, where several subjects are taught, are given. Floor plans of the shops are shown, and the equipment recommended is listed and illustrated.

Woodworking Machinery.—J. D. Wallace & Co., Chicago. Catalog 402C, 24 pages. Space is devoted to a general description of the company's 16-in. band saw, universal and plain circular saws, 6-in. jointer, 4-in. planer, 6-in. lathe, disk grinder and sander and electric glue pot with automatic heat control. The machines are portable and are equipped with direct motor drive. Several illustrations show use of the equipment.

Used Machinery.—McCabe & Sheeran Machinery Corporation, 50 Church Street, New York. Folder of several pages lists and illustrates machine tools and other equipment for sale at the Power & Mining Machinery Works, Cudahy (Milwaukee), Wis. A wide line of machine tools is offered, and also electric cranes and hoists, power equipment and boiler and plate shop machinery.

Babbitt.—Ajax Metal Co., Philadelphia. Booklet 32 pages, 3½ x 6 in., under title of "Babbitt Facts" and intended to assist in selection and correct use of lining metal. The four classes of babbitt are discussed and pouring directions are given. The characteristics of the company's ball-bearing alloy, tin base and other babbitts are outlined.

Automatic Rotary Heat Treating Furnaces.—W. S. Rockwell Co., 50 Church Street, New York. Bulletin No. 261, 24 pages, describes the company's automatic rotary furnace and quenching, coating or coloring tanks. The equipment is intended for the heat-treatment of metal products the size and shape of which permit of a slow rolling action and continuous stream movement. The furnace is internally fired and has a revolving horizontal cylinder with a refractory, metallic or combination spiral lining. Provision for uniformly applying heat to the individual piece and for gradually heating each piece in its automatic stream movement through the furnace are advantages stressed. The time and rate of heating are automatically controlled, similar results in quenching being said to be obtained by the automatic rotary quenching tanks. Decreased labor cost, fuel economy and greater output are claimed. Illustrations are numerous and include installations for heat treatment of forgings and malleable iron and steel castings.

"Two Feet of Electrical Heat."—Cutler Hammer Mfg. Co., Milwaukee. Six-page folder describing, with illustrations, heating elements used for many drying and heating purposes of low temperature, such as drying of photographic films or negatives, heating watchmen's shanties, cabs of overhead cranes, vaults and other places, as well as valve houses for automatic sprinkler systems.

Sprocket Wheels and Chain Belting.—W. A. Jones Foundry & Machine Co., 4451 West Roosevelt Road, Chicago. Catalog 32 of 40 pages covers not only sprocket wheels and chain belting, but chain tighteners, elevator boots, buckets, bolts, hand-wheels, etc. It is thoroughly illustrated and has tables of dimensions and clearances, together with list prices and weights of different items.

Diesel Engines.—Fulton Iron Works Co., St. Louis. Bulletin No. 807 on "The Diesel Engine in Medium-Powered Central Stations," treating briefly the losses incurred through incompetent steam plant operation. It lists the equipment of plants using the company's engines and shows the financial reports of those companies. Size, eight pages, 8 x 12 in.

Calendar.—Nordberg Mfg. Co., Milwaukee. Size 13 x 32 in. Twelve sheets, with calendar for current month in black and red on brown, with past and coming month above and below current calendar respectively. At the top of each sheet are shown various installations of uniflow and Diesel engines and other equipment of the company.

Calendar.—Youngstown Sheet & Tube Co., Youngstown, Ohio. Size 19 x 25 in. Two months before and after the current month are included on each page. Views of various departments in several different works are on the upper part of each sheet.

STEEL AND INDUSTRIAL STOCKS

The range of prices on active steel and industrial stocks from Monday of last week to Monday of this week was as follows:

	Low	High		Low	High
Allis-Chalmers .	78½	82¾	Inland Steel	45½	47
Allis-Chalm. pf.	106½	107	Int. Har.....	106¼	110⅞
Am. B. S. & Fdy.	97½	99	Int. Har. pf.....	114½	115
Am. Can 158¾		167½	Lima Loco	69¼	72
Am. Can pf.....116		116⅛	Midvale Steel...	30⅛	30⅛
Am. Car & Fdy..198		203	Nat.-Acme	7⅞	7¾
Am. C. & F. pf..122½		124	Nat. En. & Stm.	34⅝	36⅞
Am. Locomotive	114½	118¾	Nat. En. & S. Pf.	87¼	88
Am. Loco. pf....120		121⅛	N. Y. Air Brake	51½	53¼
Am. Radiator .. 98		105	Otis Steel	10⅛	10½
Am. Steel Fdries	46½	47¾	Pressed Stl. Car	64⅝	69
Am. Stl. Fd. pf..109½		110	Pressed Steel pf.	88½	89⅞
Bald. Loco. 130¼		135	Replogle Steel..	20¼	22
Bald. Loco. pf..116		116	Republic	58¼	61½
Beth. Steel.....	50¼	52⅞	Republic pf.	93½	94
Beth. Stl. 7% pf.	97½	98	Sloss-Sheffield ..	83⅛	87⅞
Beth. Stl. 8% pf.	112	112¾	Sloss-Sheffield pf.	96¼	96¼
Br. Em. Steel...	3¼	3¼	Superior Steel ..	37	37½
Br. Em. Stl. 1 pf.	30¼	30¼	Transue-Wms. .	31⅝	32¼
Br. Em. Stl. 2 pf.	8¼	8¼	Un. Alloy Steel..	32⅛	34⅝
Chic. Pneu. Tool	90⅝	92	U. S. Pipe 162		185
Colo. Fuel	42¼	45⅞	U. S. Pipe pf...104		110
Crucible Steel ..	74½	78½	U. S. Steel.....124¼		129⅝
Crucible Stl. pf..	95¼	96	U. S. Steel pf...123½		125½
Gen. Electric ...306		315	Vanadium Steel.	28½	30⅝
Gt. No. Ore Cert.	38½	40½	W'house Air Br.106		109¼
Gulf States Steel	85	88¾	Y'gstown S. & T.	73	73⅞

Industrial Finance

The Rima Steel Corporation (Rimamurany-Salgotarjan Iron Works, Ltd.), one of the largest iron and steel manufacturing enterprises in Hungary, has sold $3,000,000 of seven per cent bonds to F. J. Lisman & Co., New York. The corporation was formed as an amalgamation of plants in Hungary, which were started in the eighteenth century. It employs over 12,000 persons and its properties as of June 30, 1924, represented a gold value of $28,000,000, according to bankers' estimates.

Directors of the American Car & Foundry Co. have authorized the organization of a corporation to be known as the American Car & Foundry Securities Corporation, whose authorized and issued capital stock of $10,000,000 will be owned by the parent concern. The new corporation is given rights to hold and dispose of stocks, bonds and other securities owned by the parent company.

A bid of $380,000, submitted in behalf of the bondholders of the Haynes Automobile Co., Kokomo, Ind., for the company's property, was refused by R. L. Tudor, receiver for the company, who will recommend to the Federal Court that the property be offered for sale again early in February.

Walter A. Clark, Rutland, Vt., has been made receiver for the Davis Foundry Co., Inc., that city. The petition for receivership was made by the Worcester Bank & Trust Co., Worcester, Mass., on a claim of a $40,000 mortgage on the plant. The company expanded its plant materially during the war.

Directors of the Harbison-Walker Refractories Co. have declared a stock dividend of 33⅓ per cent on common stock out of the accumulated surplus, payable May 19. The payment is subject to approval by the stockholders of the increase in the capital stock from $30,000,000 to $39,000,000.

A voluntary petition in bankruptcy has been filed by the Covell Engineering Co., Kenosha, Wis. Liabilities are $12,574 and assets are $27,130. Higgins & Higgins, Kenosha, are attorneys for the bankrupt.

Sale at auction of the plant, good will and production materials of the Haynes Automobile Co., Kokomo, Ind., authorized by Harry C. Sheridan, referee in bankruptcy in the Federal Court at Indianapolis, will be held Jan. 22, but the place is not designated. It is said that bondholders will buy the plant and business with the $1,450,000 of outstanding bonds and will then lease the plant to an operator.

Refinancing of the Pennsylvania Engineering Works at New Castle, Pa., including the sale of $300,000 of preferred stock, has been completed, stockholders were informed Jan. 16, at a meeting of the committee on refinancing. At the annual stockholders' meeting Jan. 27, recommendation will be made that an application be filed in court to lift the receivership placed upon the company some time ago. The company's property is now in operation and it has taken a number of important contracts.

Net income of the Reynolds Spring Co. and the General Leather Co. for 1924 totaled $469,985, after depreciation and Federal taxes. This is equivalent after preferred dividends to $1.13 per share on 387,958 shares of no par common stock and compares with net income of $290,234 earned in 1923. The General Leather Co. was acquired in June, 1924.

Directors of the Stanley Works, New Britain, Conn., on Jan. 17 voted to recommend to stockholders that common stock of the companies be increased from $6,500,000 to $10,400,000, the difference to be distributed in the form of a stock dividend. It was also voted to retire 25 per cent of the preferred stock, bringing it to $4,000,000.

Directors of the United States Cast Iron Pipe & Foundry Co. have declared an extra dividend of $5.01 a share on preferred stock, completely liquidating accumulations on this issue. Its income statement for 1924 showed net profits of $6,020,920 after taxes and charges, compared with $3,471,067 in 1923. Four regular quarterly dividends of $1.75 a share also were declared, these being payable out of 1924 earnings. Payment of accumulated dividends involved $601,370 which will be paid from a fund set aside for that purpose.

The Guibert Steel Co., Pittsburgh, reported at the annual stockholders meeting on Jan. 19, that the past year was profitable and that a substantial amount was added to surplus. Stock was placed on a conservative dividend basis. The board of directors was increased from five to seven, two employees being added. Directors and officers were reelected.

Industrial Notes

Buildings erected by the Imperial Government at Toronto, Ont., during the war at a cost of $1,250,000 have been acquired by the Dodge Brothers, motor car manufacturers, to be used as the Canadian plant, replacing the one established at Waterville. The Canadian business will be conducted as Dodge Brothers, Ltd., which will formulate its own policies and govern its own production. E. P. Clarkson, Canadian representative for Dodge Brothers during the last ten years, is general manager.

John Dougherty & Son, 1424-32 North Twentieth Street, Philadelphia, have been awarded the 1925 contract for the purchase of scrap iron in the city of Philadelphia.

Expansion of the Wayne Tank & Pump Co., Fort Wayne, Ind., to embrace the manufacture of domestic oil burners, has resulted in a reorganization of personnel, W. G. Zahrt, formerly sales manager of the pump and tank division, becoming director of all sales and F. O. Sallee, manager of oil company sales for the last six months, and previously in charge of sales at Philadelphia, Richmond, Va., and Atlanta, Ga., succeeds Mr. Zahrt as sales manager of the pump and tank division. Business done by the Wayne Tank & Pump Co. in 1924 has been the greatest in the history of the plant and company officials are confident that 1925 will see an even greater activity.

Shipments of Plibrico furnace lining are now being made from the factory recently completed at Trenton, N. J., for the Plibrico Jointless Firebrick Co. of Chicago.

Bonus payments running as high as $50 were made about a week ago by the Chapman Valve Mfg. Co., Springfield, Mass., to about 50 per cent of its employees, including all employed three or more years. Amounts were based on the length of service.

The East Buffalo Car Shops, which have been operated since November, 1921, by the Conners Car Co., Buffalo, will be operated by the New York Central Railroad after March 1.

Cincinnati Companies Combine

The Queen City Steel Treating Co. and Metallurgical Service Co., both of Cincinnati, have combined their businesses and are now operating under the name of the first company. E. P. Stenger, president and manager of the Queen City Steel Treating Co., is the active head of the corporation, and N. M. Salkover, who formerly conducted the Metallurgical Service Co., is a member of the Queen City organization. In addition to operating a modern commercial heat-treating plant, the company now sells heat-treating equipment and supplies. It is Cincinnati district representative for the American Gas Furnace Co., the Case Hardening Service Co., Charles Engelhard, Inc., the General Alloys Co. and other manufacturers in this field.

"How Portland Cement Is Distributed" is the title of a 24-page pamphlet by Morris Kind, president Hercules Cement Corporation, Philadelphia. In few other industries is the route between producer and consumer so short and direct. The industry combines the three-fold advantages to the consumer of production widely distributed and on a large scale, nearby sources of supply and direct sales from manufacturer to retailer. Cement is manufactured in 29 States, some of which have as many as 18 plants.

Plans of New Companies

The Edwards Iron Works, 2025 South Main Street, South Bend, Ind., recently was incorporated as successor to the partnership to W. H. & J. S. Edwards, established five years ago. It has a fully equipped plant to fabricate structural steel, ornamental iron and plate work. The company also makes special factory equipment. W. H. Edwards is president.

The Jarosch Bearings Corporation, 1819 Broadway, New York, has been incorporated to act as American representative of the F & H factories in Germany, manufacturers of ball and roller bearings. The new company will confine present activities to distribution in this country, but in about six months it will consider the establishment of a factory here. F. J. Jarosch is manager.

The Eagle Mfg. Co., 72 York Street, Jersey City, N. J., has been incorporated with $100,000 capital stock and is engaged in manufacturing radio transformers, condensers, etc. Possibly at a later date the company will undertake the manufacture of complete sets.

The Holcombe Textile Equipment Co. has been incorporated at Birmingham, Ala., with $40,000 capital stock to manufacture specialties for loom connections in cotton mills. G. C. Illingworth is president; H. H. Holcombe, vice-president, and R. D. Johnston, secretary-treasurer.

The Walker Switchboard Co., 1020 Susquehanna Avenue, Philadelphia, recently incorporated, plans to take over the plant of the Walker Electric Co. and will do business under the same management. E. M. Bobelbower is president; J. W. Scheurer, general manager; William G. Otto, general sales manager.

The Eastern Electric & Mfg. Co., 140 Chestnut Street, Providence, R. I., has been organized to manufacture radio equipment. Manufacturing space has been leased and operations will begin at once. The company expects to be in the market from time to time for machine shop equipment. Charles O. Cressy is one of the principals.

The Ross Wire Co., 9 Charles Street, Providence, R. I., recently incorporated to continue a business in the manufacture of radio and electrical wires, has completed a new factory at 69 Bath Street, Providence, to which it will move about March 1. Equipment has been purchased.

The Phoenix Brass Foundry & Machine Works, Water and Madison Streets, Mobile, Ala., has been incorporated with $30,000 capital stock, $25,000 of which is paid in; to acquire full interest in the Phoenix Machine Mfg. & Foundry Co., whose plant will be operated to handle general repairs and all kinds of machinery. It is also to do repair work on tugs and launches. Equipment is sufficient for present needs, but additional equipment may be needed later. C. A. Baumhauer is president and secretary.

The California Zinc Co. has been organized to take over and operate the Bully Hill mine of the old Shasta Zinc & Copper Co., San Francisco. The company is already mining zinc ore and has a smelter in operation. New equipment has been installed and within a short time operations will begin at full capacity. Later the company may equip to produce concentrates. It is also possible that a tram will be constructed, connecting another property with the smelter on the Shasta property. A. D. Bryant, Winthrop, Cal., general manager, is in charge of operations.

Subsequent to the sale of the Atlas Steel Corporation, Dunkirk, N. Y., last week, came the announcement of the incorporation of the Atlas Alloy Steel Corporation, by E. H. Letchworth, G. E. Phillips and F. Nernow, Buffalo. It is proposed to take over the operation of the plant as soon as the sale has been confirmed by the U. S. District Court in session at Elmira.

The Hydrotator Co., 1328 Chestnut Street, Philadelphia, has been formed to acquire the patents and engineering business of L. C. Trent, who has been operating as the L. C. Trent Engineering Co., Philadelphia. Mr. Trent has retired from the business except for a limited territorial arrangement on the Pacific Coast. The Trent patents cover entirely different processes from those employed by the Trent Process Corporation, Trent Superfuel Co. and the Pittsburgh Trent Co., none of which is connected with the new company. Walter L. Remick, formerly engineering editor of the Keystone Mining Catalogs, will assume active management after Feb. 1.

The Diehl Welding & Machine Co., Inc., 121-23 North Michigan Avenue, Atlantic City, N. J., has been incorporated to continue the business previously conducted by J. B. Diehl, general machinist and iron worker. J. B. Diehl is president and W. R. Pritchard, vice-president.

The Galloway Co., Waterloo, Iowa, has been incorporated to take over the assets and property of the William Galloway Co., manufacturer of farm implements, gasoline engines, cream separators and radio equipment. Its factory is fully equipped. C. E. Butler is vice-president and general manager.

The recently organized Missouri Lead Products Co., 24-37 Jefferson Street, Kansas City, Mo., has completed the construction of a plant and is turning out antimonial lead, babbitt, slab zinc, etc., and carries a stock of pig tin, lead and antimony.

The Polar Electric Refrigerating Corporation, St. Louis, has been organized to manufacture automatic refrigerating plants and related products. Manufacturing will be done by contract, the company operating an assembling and testing plant. It will be in the market for copper tubing, monelmetal, sheet metal, etc. The company plans to incorporate for $200,000. Address in care of John Hague, 4060 Lafayette Avenue, St. Louis.

The Dean Hill Pump Co., Anderson, Ind., has been incorporated with $300,000 capital stock to manufacture steam pumps and parts, having acquired the plant and business of the Dean Hill Pump & Turbine Works of the Midwest Engine Corporation at Anderson. The business was organized 35 years ago and during the war was acquired by the Midwest Corporation. The company is now on a firm foundation and will be developed rapidly. Noble Dean is president.

The Bowen Hardware Corporation, a New Jersey corporation, has taken over the business of the New York corporation by that name, which was located in the Bronx, New York. The company is now located in a recently completed factory at Bayway, N. J., and is continuing the manufacture of rolled pressed screws. J. E. Jones is manager.

The Davis & Farnum Engineering Works, Inc., Waltham, Mass., has been incorporated under Massachusetts laws to take over the property of the Davis & Farnum Mfg. Co., that city, and to do general foundry work. The new corporation has a capitalization of $30,000 and 1200 shares without par value. John M. Webster and M. M. Abbott of Somerville, Mass., and David R. Donaldson, Belmont, Mass., are the officers of the new company.

The Arenco Machine Co., New York, has been organized with capital stock of $300,000 to manufacture machinery and industrial equipment. Plans will be noted in a later issue. Address in care of Mr. Zetherlund, American Kreuger & Toll Corporation, 522 Fifth Avenue.

A new belting and supply house known as the Industrial Belting & Supply Co. has been opened at 364 Sixth Street, San Francisco. R. E. Steele, president and manager, was for several years manager of the Pacific Mill & Mine Supply Co., San Francisco. Associated with him are T. A. Williams and Homer W. McCann. The company will carry a complete stock of Ladew leather belt and the Mechanical Rubber Co.'s full line of rubber goods. It has also taken over the Main Belting Co.'s stock of Anaconda and Leviathan belt. In addition it will carry packing, hose, etc.

Car Wheel Companies Merged

The National Car Wheel Co. and the Southern Wheel Co. were merged on Jan. 1, and are now operating under the name, Southern Wheel Co. Plants are located at Pittsburgh; Rochester, N. Y.; Cleveland; Sayre, Pa.; St. Louis; Birmingham, Ala.; Atlanta, Ga.; Savannah, Ga. and Portsmouth, Va. The company manufactures chilled iron wheels at all these plants, and in addition mine cars and parts at St. Louis and Birmingham, also miscellaneous gray iron castings at Pittsburgh. General offices are in the Keystone Building, Pittsburgh.

The officers are as follows: William F. Cutler, president, 30 Church Street, New York; Frank C. Turner, first vice-president, Pittsburgh; J. Brookes Spencer, vice-president in charge of sales, Pittsburgh; C. C. Esdale, operating vice-president, Birmingham, Ala.; C. M. Bower, vice-president, Grand Central Terminal, New York; H. E. McClumpha, operating vice-president, Pittsburgh; J. Francis Weisbrod, assistant vice-president, Pittsburgh; Andrew Muirhead, treasurer, Pittsburgh; W. M. McCoy, comptroller, 30 Church Street, New York; E. C. Hof, assistant comptroller, Pittsburgh; G. M. Judd, secretary, 30 Church Street, New York.

This company is a subsidiary of the American Brake Shoe & Foundry Co.

The foundry of the Hertzler & Zook Co., Belleville, Pa., which was destroyed by fire on Sept. 27, has been replaced by a modern fireproof foundry building completely equipped with modern machinery in accordance with advanced production methods. The foundry furnishes iron, brass, bronze and aluminum castings for the H & Z line of wood saws, cider mills, etc., and also does custom work.

Machinery Markets and News of the Works

LULL IN ACTIVITY

List of 26 Items Issued by Copper Mining Company

American Rolling Mill Co., Enters Market—Eight Machines Wanted by Louisville & Nashville

THE volume of orders placed during the week was not large and business at the close of the month may be characterized perhaps as at comparatively low ebb. Like the inquiries received, which were in good volume, orders were for the most part for one or two machines and were well scattered. Although the slow development of prospective business into actual inquiries has been disappointing, the outlook is not without encouraging features.

An outstanding list is that of the Andes Copper Mining Co., 25 Broadway, New York, which covers approximately 26 items, including lathes, boring mills, slotters and other tools for shipment to Chile.

The American Rolling Mill Co. is in the market for tools for its Ashland, Ky., plant.

A list of eight machines for the Louisville & Nashville Railroad and a small inquiry by the Nashville, Chattanooga & St. Louis have been issued. Railroad buying in general is light.

Orders for machine tools were received from Europe and from Japan.

New York

NEW YORK, Jan. 27.

BUSINESS in machine tools is quieter than for several weeks, as far as new inquiries are concerned. The single exception was the appearance of a list of about 26 items from the Andes Copper Mining Co., 25 Broadway, New York, for export to Chile. Included among the tools on which prices were requested are five engine lathes, two vertical boring mills and a slotter. The Worthington Pump & Machinery Corporation, New York, is reported to have closed on several more tools for Buffalo. The company's inquiry for the Paris plant is inactive at present. The Pennsylvania Railroad continues to ask for estimates on individual items. It is understood that in some cases these have been secured as a courtesy to the Alaska Railway, which, should its financial position permit, may become a purchaser sometime in the future.

The New York Central Railroad is continuing its inquiry for separate tools and has closed on several lately, including two floor grinders and two 26-in. vertical drill presses. The Pullman Car & Mfg. Corporation has closed on a 48-in. car-wheel borer.

Property at Seventh and Pierce Avenues, Long Island City, totaling 16,500 sq. ft., has been acquired by the Hasbrouck Flooring Co., 501 East Seventieth Street, New York, as a site for a four-story woodworking plant, to cost $75,000.

Motors, controls, conveying and other equipment will be installed in the proposed printing plant to be erected jointly by the J. B. Lyon Printing Co., and the Williams Press, Market Square, Albany, N. Y., to cost approximately $1,000,000 with machinery. Charles M. Winchester is in charge.

The Eisemann Magneto Corporation, 32 Thirty-third Street, Brooklyn, has acquired the automobile division of the Duplex Engine Governor Co., 36 Flatbush Avenue Extension, manufacturer of speed controlling devices, and will continue the production of such equipment. Plans are under way for the manufacture of a recently perfected mercury turbine governor. William M. Shaw is president.

The New York Central Railroad Co., W. C. Bower, manager, purchases and stores, room 344, 466 Lexington Avenue, New York, is asking bids until Feb. 2 for a number of railroad motors and multiple unit control equipments, serial contract No. 3-1925; until Feb. 3, for 10 steel gasoline hoisting barges, serial contract No. 4-1925; until Feb. 4, for one Diesel engine tugboat, with electrical transmission, serial contract No. 5-1925.

The Board of Education, Ilion, N. Y., is considering the installation of manual training equipment in the two-story addition to the high school estimated to cost $150,000, for which it is expected to ask bids on a general contract early in February. Kinne & Frank, 7 Hopper Street, Utica, N. Y., are architects.

The Cities Service Co., 60 Wall Street, New York, operating electric light and power, and oil utilities, is disposing of a bond issue of $2,500,000, a portion of the fund to be used for expansion and betterments in properties. Henry L. Doherty is president.

The Bureau of Yards and Docks, Navy Department, Washington, is taking bids until Feb. 11 for a 60-hp. oil engine for the naval station St. Thomas, Virgin Islands.

John DeHart, 1039 Fox Street, New York, architect, is preparing revised plans for a four-story automobile service, repair and garage building, 50 x 100 ft. on Frankfort Street, estimated to cost $85,000.

Joseph Stolz & Son, Inc., Commerce Avenue and 170th Street, New York, structural iron and steel, etc., is in the market for a derrick for yard service, suitable for handling structural shapes.

The Radio Corporation of America, Woolworth Building, New York, is planning for the construction of a super-radio station near the entrance to Manila Bay, United States Navy Reserve, Manila, P. I., with steel towers, power plant, etc., estimated to cost approximately $4,000,000.

The American Beet Sugar Co., 32 Nassau Street, New York, has concluded negotiations for the purchase of the plants and properties of the Northern Sugar Corporation, Minneapolis, Minn., with mill at Mason City, Iowa, and the Minnesota Sugar Co., Chaska, Minn. The company has arranged for a bond issue of $3,500,000, to provide for the purchases, and for proposed extensions and betterments in the mills.

The Department of Electricity, Melbourne, Australia, will take bids until March 23, for one 2000-kw. rotary converter, with transformers and accessory apparatus.

The Board of Education, Freehold, N. J., is considering the installation of manual training equipment in its proposed three-story high school, estimated to cost $350,000, for which plans are being prepared by Alexander Merchant, 1 Elm Row, New Brunswick, N. J. It is expected to ask bids on a general contract early in February.

The Federal Metal Bed Co., 816 Clinton Street, Hoboken, N. J., has work under way on a new one-story foundry, 125 x 136 ft., for which a general contract recently was let to the H. K. Ferguson Co., Cleveland.

F. William Stocker, 501 Eighth Street, Hoboken, N. J., has inquiries out for a 2-hp. hoist, mono-rail type, single phase.

Motors, controls, conveying and other machinery will be installed in the two-story printing plant, 150 x 240 ft., to be erected on Maple Street, at Jersey City, N. J., by the Jersey City Printing Co., 160 Maple Street, for which a general contract has been awarded to the John W. Ferguson Co., Paterson, N. J. Henry D. Scudder, Jr., Union Building, Newark, is architect and engineer.

The Repp Laboratories, 1100 North Avenue, Plainfield, N. J., is in the market for one geared drawing press for shells up to 2½ ft. long; also for one small dial feed press, and one power bench press.

The Newark Metal Mfg. Co., 61 New Jersey Railroad Avenue, Newark, has leased a portion of the former local plant of the Valley Forge Cutlery Co., North Sixth Street,

now owned by the J. Wiss & Sons Co., 31 Littleton Avenue, manufacturer of cutlery specialties, for a new works. The Breeze Metal Hose Co., 250 South Street, has also leased a portion of the plant for a new factory.

The Acme Cushion Wheel Co., Inc., Newark, recently organized, has leased the building at 251-53 Hillside Avenue, recently completed, and will install equipment for the manufacture of automobile wheels and other automotive products. Joseph Cornfield is president of the new company, and Alexander D. McNealy, secretary.

The David Grimes Radio & Cameo Record Corporation has been organized with $30,000,000 capital stock, Delaware laws, to acquire David Grimes, Inc., maker of radio sets, the Cameo Record Corporation, Cameo Corporation, Lincoln Record Corporation, and the American Record Mfg. Co. The new capital will be used for enlargement, for which plans are being made. The company will be in the market for materials and equipment in large quantities within a few days. The temporary address is care of Thomas F. MacMahon, 1400 Broadway, New York.

Philadelphia

PHILADELPHIA, Jan. 26.

THE H. B. Smith Co., Westfield, Mass., manufacturer of boilers, radiators, etc., with Philadelphia branch at Seventeenth and Arch Streets, has awarded a general contract to the John N. Gill Construction Co., City Center Building, for a new plant at Forty-ninth Street and Grays Ferry Avenue, Philadelphia, to cost approximately $75,000.

The Collings Carriage Co., Front and Federal Streets, Camden, N. J., manufacturer of automobile bodies, has purchased for $125,000, the two-story building at North Twenty-second and Race Streets, Philadelphia, for a factory branch, with department for service and repair work.

Henry E. Strathmann, Inc., Ontario Street Wharf, Philadelphia, has leased about one acre at the foot of Fifty-first Street, as a site for a new sand and gravel unloading plant. A dock will be constructed.

Abraham Levy, Real Estate Trust Building, Philadelphia, architect, has plans for a three-story automobile service, repair and garage building, 68 x 150 ft., estimated to cost $125,000.

The Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until Feb. 10 for eight portable electric drills for the Philadelphia Navy Yard, and for 26 such drills for the Mare Island yard, schedule 3225; until Feb. 3, for 2000 ft. lighting and power wire for the Philadelphia yard, and 1650 ft. for Mare Island.

R. C. Hughes, Philadelphia, and associates, have acquired the seven-story plant of the Haverford Cycle Co., 1002-4 Buttonwood Street, from the receivers for the company, David Halstead and Henry W. Hand, and are said to be planning to use the factory for a kindred line of production.

The Foreign Trade Bureau, Philadelphia Commercial Museum, has received the following inquiries: (43127) from S. Mendonca, Rua do Bom Jesus 99, Recife, Pernambuco, Brazil, in the market for machinery for a cotton seed oil plant, prices desired f. o. b. New York, with correspondence in Portuguese; (43147) from Clench Gibbons & Co., Hall of Commerce, High Street, Auckland, New Zealand, desiring to purchase American machinery for grinding peanuts and the manufacture of peanut butter; (43125) from Compania Mercantil Occidental, S. A., S. H. Calle 3, Num. 516, Guadalajara, Mexico, desiring to get in touch with American manufacturers of stamped tinned grocers' scoops and kindred stamped metal ware; (43148) from Nicholas E. Cazis, 11 Lycourgou Street, Athens, Greece, desiring to get in contact with American manufacturers of deep-well pumping machinery, and water pumps in general, gasoline pumping engines, crude oil engines, marine and stationary super-Diesel engines, and (43141) from Jose C. Umpierre, P. O. Box 76, Bayamon, Porto Rico, desiring to get in touch with American manufacturers of bolts, nuts, rivets, hardware, bolt and nut machinery, rice machinery, chocolate machinery, etc.

The George W. Plumly Co., 213 North Fourth Street, Philadelphia, manufacturer of paper boxes and containers, has leased space in the building recently completed at Randolph and Vine Streets for a new plant.

The H. J. Heinz Co., 1062 Progress Street, Pittsburgh, plans the construction of a power house at its proposed branch factory at Chambersburg, Pa., estimated to cost $400,000.

The Music Master Corporation, Betzwood, near Philadelphia, manufacturer of radio horns and other equipment, has arranged for a capital stock issue of $3,000,000, a considerable portion of the proceeds to be used for expansion, including the establishment of factory branches in about 16 distributing centers. Walter L. Eckhardt is president.

Fire, Jan. 26, destroyed a portion of the plant of the American Road Machine Co., Kennett Square, Pa., with a loss estimated at $17,000 including equipment. It is planned to rebuild.

The Pennsylvania Power & Light Corporation, Allentown, Pa., has purchased two tracts of land at the Shamokin Dam, near Sunbury, Pa., to be used in connection with its proposed electric generating plant in this district, estimated to cost $5,000,000.

The Board of Education, York, Pa., has revised plans for a two-story and basement industrial high school, 232 x 345 ft., estimated to cost close to $1,000,000 with equipment. John B. Hamme, City Bank Building, is architect.

The Sherman Coal Co., Pottsville, Pa., is planning the construction of a new colliery in this vicinity, with electric-operated coal breaker and other machinery, to cost more than $400,000. Gary Gray is superintendent.

The Martin-Parry Corporation, York, Pa., manufacturer of commercial automobile bodies, is arranging for an increase in capital from 100,000 to 200,000 shares of stock, no par value, a portion of the proceeds to be used for expansion, including proposed extensions in branch plants at Indianapolis.

The Krupp Foundry Co., Lansdale, Pa., has tentative plans for a one-story addition to its foundry at Quakertown, Pa. It is proposed to begin work in the spring. William Brecht is president.

President A. T. Dice of the Reading Co. announces that on March 1 bids will be asked for the construction of the first unit of new grain elevators to be erected at Port Richmond piers, Philadelphia. It is estimated that one unit will cost about $3,000,000 and will have a capacity of $2,500,000 bu. It is understood that $300,000 also will be spent for rebuilding an elevator recently destroyed by fire at Twentieth Street and Pennsylvania Avenue, Philadelphia.

The Reading Sheet Metal Products Co., Reading, Pa., is in the market for a Ferracute Machine Co. press, No. P-24 or P-34.

Buffalo

BUFFALO, Jan. 26.

SELLERS of machine tools note a brisker period setting in with promise of good business ahead. A few scattered sales during the week are reported, about equally distributed between used and new tools. The Worthington Pump & Machinery Corporation was the heaviest buyer, having purchased 10-foot radial drills, a large boring mill and two large lathes.

The Dunlop Tire & Rubber Corporation of America, Best Road, Tonawanda, N. Y., has acquired the property of the Utica Spinning Co., Utica, N. Y., and will operate the plant as a division of its business.

The plant of the American Magnesium Co., Niagara Falls, N. Y., will be converted into a factory for the manufacture of aluminum automobile bodies. The Aluminum Company of America is said to be in control of the plant.

The Westcott Valve Co., Seneca Falls, N. Y., has awarded a general contract to the Wimmer Construction Co., Victoria Building, St. Louis, for the erection of a one- and two-story branch plant, including foundry, at East St. Louis, Ill., to cost $200,000 with equipment.

The Sterling Furniture Co., 16 Nelson Avenue, Salamanca, N. Y., has engaged A. W. E. Schoenberg, First National Bank Building, Olean, N. Y., architect, to prepare plans for its four-story addition, 72 x 80 ft.

Electric power equipment, hoisting and conveying machinery will be installed in the proposed grain elevator to be erected by the Abell Forwarding Co., Inc., Chamber of Commerce Building, Buffalo, estimated to cost $3,000,000, with machinery. It will have a capacity of 1,200,000 bu. Howard L. Abell is president.

The Empire Gas & Electric Co., Geneva, N. Y., is in the market for coal conveying and handling machinery, to replace that destroyed by fire Jan. 21 with a loss of $30,000.

A lathe, drill press, grinders, and other machine shop equipment will be required by the MacDonnell & Brannen Corporation, Bolivar, N. Y., in connection with a proposed branch machine shop at Eldred, Pa.

Electrical power and other equipment will be required by the Mathieson Alkali Works, Inc., 2400 Buffalo Avenue, Niagara Falls, N. Y., in connection with extensions and improvements to its plant estimated to cost $250,000.

A. M. Anderson, purchasing agent, North East Electric Co., Rochester, N. Y., is inquiring for a No. 3 two-spindle Avey drill press.

Detroit

DETROIT, Jan. 26.

WORK has begun on a new ship and boat repair plant at Hamlin, Mich., by the Lunde Boat Building Co., Ludington, Mich., to cost $35,000 with machinery.

The Board of Education, Royal Oak, Mich., plans the installation of manual training equipment in the new senior high school to cost $175,000, for which bids will soon be asked on a general contract. F. D. Madison, First State Bank Building, is architect.

The superintendent of lighthouses, United States Lighthouse Service, 900 Lawyers' Building, Detroit, will take bids until Feb. 2, for two oil engine driven air compressors.

The Kalamazoo Paper Co., Kalamazoo, Mich., is arranging an appropriation of about $1,000,000 for extensions and improvements during the year and the installation of additional equipment. F. M. Hodge is president.

The Hayes-Ionia Co., Grand Rapids, Mich., manufacturer of automobile bodies, has awarded a general building contract to the Owen-Ames-Kimball Co., Grand Rapids, for an addition for steel stamping operations.

The Roehm Steel Rolling Mills, Detroit, recently organized, have taken over the plant of the Railway Steel Spring Co., for the production of spring steel for automobile springs and bumpers, carbon and alloy steel for automobile parts, etc. T. F. Thornton, formerly connected with the Detroit Steel Products Co., is president of the new organization, with C. M. Roehm, chairman of the board of directors. Lawrence S. Roehm is secretary and treasurer.

Chicago

CHICAGO, Jan. 26.

AFTER an active beginning, January is closing with business at a low ebb. The trade has not altogether lost its optimism, but the slowness with which prospects develop into actual inquiries is a matter of comment. Action on the Chicago Board of Education's inquiry for 24 engine lathes has again been deferred, and the issuance of railroad lists still remains in the future. The Northern Pacific has asked for estimates on a number of tools in connection with the preparation of its budget, but so far as can be learned here, has not put out definite inquiries. Current orders are confined to one or two machines each.

The Koehring Machine Co., Milwaukee, has placed orders for a 24-in. and a 20-in. shaper. For Kearny, N. J., the Western Electric has bought a 24-in. shaper, a 12-in. lathe, and a 10-ft. bending brake. The Youngstown Sheet & Tube Co. is in the market for a 24-in. lathe for its Indiana Harbor, Ind., works. The American Steel & Wire Co. is inquiring for an automatic keyseater of 4-in. capacity arranged for belt drive, to be installed at its DeKalb, Ill., plant. The Janesville Products Co., Janesville, Wis., has asked for prices on a 10-ft. power shear, 16 to 18-gage capacity.

The Continental Scale Works, Inc., 2126 West Twenty-first Place, Chicago, has purchased the southeast corner of Claremont and Fifty-seventh Streets, 238 x 240 ft., and will build a two-story plant, 120 x 133 ft.

The American Bolt Corporation, 3341 West Forty-second Street, Chicago, has awarded a general contract for a one and two-story factory, 226 x 229 ft., at 3341-3401 West Forty-seventh Street, to cost $200,000.

The Glass Novelty Co., Inc., 1915 West Nineteenth Street, Chicago, will construct a two-story factory, 80 x 500 ft., at 4400-18 West Twenty-sixth Street, to cost $95,000.

The Security Electric Mfg. Co., 2635 Canton Street, Chicago, has awarded contract for a one-story addition, 50 x 125 ft., to cost $20,000.

A. C. Porter, for 16 years in the foundry business, has opened the Lincoln Foundry Co. at 1848 Vine Street, Lincoln, Neb. Semi-steel castings will be manufactured.

The Albertson Co., Floyd Avenue, Sioux City, Iowa, is having plans drawn for a two-story machine shop addition, 150 x 165 ft., to cost $50,000, for which bids will soon be asked on a general contract. Colby & Westerlind, War Eagle Building, are architects.

The Minnesota Electric Light & Power Co., McKnight Building, Minneapolis, is planning for a new hydroelectric generating station on the Mississippi River, near Bemidji, Minn., to cost in excess of $500,000. H. M. Heslett is general manager.

The Standard Oil Co., 400 East Cerro Gordo Street, Decatur, Ill., will take bids early in February for a one-story and two-story building, 80 x 200 ft., at East St. Louis, Ill., to cost approximately $90,000. Schlinz & Bailey, Monadnock Building, Chicago, are engineers.

The Russakov Can Co., 940 West Chicago Avenue, Chicago, manufacturer of cans and metal containers, is asking bids on a general contract for a one-story and basement addition to cost $75,000 with equipment. L. Komar, 105 North Clark Street, is architect.

The commanding officer, Rock Island Arsenal, Rock Island, Ill., is taking bids until Feb. 6 for quantities of twist drills, proposals O-AP 35,605-A, O-AP 35, 602-A, O-AP 35,603-A, and O-AP 35,604-A.

The Common Council, Ismay, Mont., is contemplating the establishment of a municipal electric light and power plant. It is proposed to take over existing property, make improvements and install additional equipment.

The St. Louis Pressed Steel Co., 2701 McCasland Avenue, East St. Louis, Ill., has awarded a general contract to J. I. Gedney, 1461 Hall Street, for a one-story addition, 100 x 100 ft. Edward B. Fay, Fullerton Building, St. Louis, is engineer. R. L. Dutton is president.

The Sioux City Gas & Electric Co., Sioux City, Iowa, is planning the construction of additional units at its new steam-operated electric power plant now in course of erection. The expansion is reported to cost $2,000,000 with machinery.

The Boone Market Co., Boone, Iowa, is considering the construction of a two-story and basement cold storage and refrigerating plant, 50 x 150 ft., estimated to cost $50,000. Christopher Vaght heads the company.

Brooks, Bramhall & Dague, National Bank Building, Decatur, Ill., architect, are completing plans for a one-story power plant to cost $35,000 with equipment, for local school service.

New England

BOSTON, Jan. 26.

NO improvement in business is noted by local machine-tool dealers. Current sales are few and for single machines, the most important the past week being a large milling machine to a Massachusetts machinery manufacturer. Among used tool sales was a large American lathe to a New Hampshire shop. Dealers have quite a few quotations out, but it is difficult to secure buyers' names on orders. Auction sales of surplus machinery carried by manufacturers for several years continue to cut into the used tool business. New inquiries are for a diversified list of single tools but without volume. Competition for business is still keen between new and used tool houses and prices are more or less subject to concessions of some sort.

Small tools and machine parts business holds up remarkably well. One of the largest Western manufacturers of carbon and high speed drills, reamers, cutters and special tools states that prospects for business the first six months of 1925 are bright. Customers are buying conservatively, however. The industry as a whole in 1924 operated at 60 per cent to 70 per cent of normal, and at present is about on a 60 per cent basis. Manufacturers of such tools are adequately stocked, according to this manufacturer.

The Brockway Motor Truck Co., Boston, has filed plans for a one-story service and repair building at 217 North Beacon Street, estimated to cost $55,000 with equipment.

Batteries, engine and generator pumps are required for a three unit electric light power plant at Truro, Mass., Barnstable County, operated by Luther C. Greenleaf, 101 Tremont Street, Boston. Foundations are being erected. Plans are private.

Indirect motors are required for a three-story, 60 x 129 ft. light manufacturing plant at 7 Bow Street, Everett, Mass., to be erected by the Metropolitan Lithographing & Publishing Co., that city, plans for which are in progress. William P. Hatch, 60 State Street, Boston, is the architect.

The Oxford Mining & Miling Co., Portland, Me., is erecting a 48 x 98 ft. feldspar grinding mill at West Paris, Me., to cost with equipment approximately $100,000. The process of grinding will be so automatic that only a small crew of workers will be necessary.

J. W. Bishop Co., 107 Foster Street, Worcester, Mass., is erecting a two-story, 160 x 480 ft. and 50 x 120 ft., plant at Auburn, Mass., on the New York, New Haven & Hartford Railroad, which will be leased to the Baldwin Chain & Mfg. Co., Chandler Street, Worcester. Plans are private. The chain company has outgrown its present quarters, making a change necessary.

The Crane Market

FEW new inquiries for overhead cranes are being received and the locomotive crane market is quiet. The inquiries of the Phoenix Utility Co., New York Edison Co., Stone & Webster, General Electric Co., for Cincinnati, Public Service Production Co. and several others are still open but expected to close soon. The Baldwin Locomotive Works is understood to have closed on five locomotive cranes for export to South America. The Ford Motor Co. is reported to have purchased a slightly special type of locomotive crane from a builder in the Northwest.

Sellers in the Pittsburgh district have quoted on a large number of inquiries and new ones are appearing daily. The most recent addition was a list of 8 to 10 cranes for the Pittsburgh Steel Products Co., which is starting the construction of a new seamless tube mill at Allenport, Pa. Two of the cranes on the list are of 100-ft. span and one of 115-ft. The National Radiator Co. is expected to close this week on a 5-ton overhead crane for its Trenton, N. J., plant.

Among recent purchases are:

Pensacola Creosoting Co., Pensacola, Fla., a 15-ton locomotive crane from the American Hoist & Derrick Co.

S. Pizzutiello & Co., Brooklyn, N. Y., stoneyard, recently in the market for a 5-ton to 10-ton crane, are reported to have closed on a used 7½-ton, 30-ft. span overhead crane.

Gibboney Iron & Steel Co., Phillipsburg, N. J., a 20-ton locomotive crane from the Link-Belt Co.

United Heating & Boiler Co., Hammond, Ind., a 10-ton overhead traveling crane from the Bedford Foundry & Machine Co.

Ohio Portland Cement Co., Painesville, Ohio, subsidiary of Diamond Alkali Co., Pittsburgh, a 10-ton, 80-ft. span, 4-motor crane with 2-cu. yd. Hayward bucket, from the Brown Hoisting Machinery Co.

Carnegie Steel Co., Pittsburgh, two 25-ton trolleys for the Homestead works, from Manning, Maxwell & Moore, Shaw Crane Works.

The Henry Weyand Co., Brown Place, Waterbury, Conn., manufacturer of metal sash and sheet metal products, is considering the erection of a one-story addition, on which work will begin in the spring.

B. S. D. Martin, 86 Weybosset Street, Providence, R. I., architect, has completed plans for a two-story and basement automobile service, repair and garage building, 138 x 150 ft., to cost approximately $140,000 with equipment.

Bird & Son, Inc., East Walpole, Mass., manufacturer of roofing products, etc., has work under way on additions to its plant at Norwood, Mass., consisting of a main three-story structure, 60 x 109 ft., and one-story building, 58 x 71 ft., to cost $100,000 with equipment. A general contract recently was let to the Central Engineering & Construction Co., Pawtucket, R. I.

The New York, New Haven & Hartford Railroad Co., New Haven, Conn., has had plans approved by the Connecticut Public Utilities Commission for the electrification of its lines from Danbury to South Norwalk, Conn., estimated to cost approximately $350,000 with equipment.

Bids are being taken for a two-story, 45 x 77 ft. fire alarm and telegraph plant to cost with equipment $100,000, to be erected at Newton Hills, Worcester, Mass. L. W. Briggs, 316 Main Street, Worcester, is the architect.

Cleveland

CLEVELAND, Jan. 26.

MACHINE-TOOL business with dealers improved considerably the past week and inquiries showed a gain over previous weeks this month. Orders were well scattered but were confined for the most part to one or two machines. However, less promising reports come from machine-tool manufacturers, with some of whom orders were scarce during the week. January sales with some builders will not equal those in December. A maker of automatic screw machinery reports improvement in foreign business, having taken orders recently from England, Sweden, Germany, Italy and Czecho-Slovakia. One Detroit automobile manufacturer purchased four or five machines, but the demand from the automotive industry continues light.

A survey of the machine-tool industry in Cleveland indicates that very few plants have taken on additional employees this month, although some manufacturers have increased their working forces. It is believed that there will be some increase in production now that inventories are over.

The Ralston Steel Car Co., East Columbus, Ohio, is preparing plans for extensions which will include a one-story addition to its main plant and new axle and wheel building and a paint and waste storage building. F. E. Symons is president and B. C. Hanna, chief engineer.

The Mack Iron Works, Sandusky, Ohio, contemplates the erection of a one-story addition, 52 x 120 ft.

The Mueller Electric Co., 1583 East Thirty-first Street, Cleveland, has awarded contract to the Hess-Klaus Co., 1319 West 103d Street, for a one-story addition, 38 x 60 ft. The George S. Rider Co., Century Building, is the structural engineer.

The Sands Mfg. Co., 5407 Sweeney Avenue, Cleveland, has placed a general contract with the Dresser-Minton-Scobell Co., 1082 The Arcade, for a two-story factory, 90 x 108 ft.

The Seneca Wire & Mfg. Co., Fostoria, Ohio, contemplates the erection of a one-story factory, 190 x 200 ft. L. E. Kinn is president and A. Welly, secretary.

Hart & Crouse, Columbus, Ohio, furnace manufacturers, have placed contract for a one-story building, 60 x 141 ft., to be erected at Poplar and Henry Streets.

Manual training departments will be provided in the following schools to be erected: At Reynoldsburg, Franklin County, Ohio, O. S. Smith is clerk of the Board of Education; Walnut Creek, Ohio, A. S. Hamsher is clerk of the Board of Education; Willard, Ohio; Elmore, Ohio, Dan Waters, clerk of the Board of Education; Bloomfield, Ohio, C. J. Ferry, Lockwood, Ohio, clerk of the Board of Education; Shawnee Township, Allen County, Ohio, E. E. Clem, Lima, Ohio, clerk of the Board of Education.

The Phoenix Horseshoe Co., Joliet, Ill., has awarded contract to the Austin Co., Cleveland, for a 60 x 140 ft. building to be erected at Cleves, Ohio, to be used as a branch plant and warehouse.

The National Screw & Mfg. Co., Cleveland, has purchased the adjoining Stanton Avenue plant of the National Acme Co., the latter having recently moved its machinery department from this plant to its Colt Road works. The new owner will equip the plant for the manufacture of some of its products and expects to purchase heading machinery and other equipment.

The Berger Mfg. Co., Canton, Ohio, operated by the United Alloy Steel Corporation, same city, is planning the erection of new buildings to replace the portion of its works recently destroyed by fire, to consist of a one-story black sheet mill, 50 x 300 ft.; one-story, 75 x 300 ft., metal lumber shop; one-story galvanizing works, 50 x 200 ft., and shop, 25 x 80 ft., estimated to cost $175,000 with equipment.

The Building Products Co., Toledo, Ohio, is asking quotations on 14-gage galvanized sheets, 36 in. wide and 34, 37½, 41½, 45½ in. long.

Pittsburgh

PITTSBURGH, Jan. 26.

WHILE a good inquiry exists for machine tools in this district and much business is pending, buyers show no anxiety about placing orders. There is no weakening in the expectation that good business is ahead for this year, but disappointment is expressed that orders so far this year have been coming out so slowly.

Power equipment still shows reasonable degree of life. The Lorain Steel Co. has placed an order with the Worthington Pump & Machinery Corporation for two 5000 cu. ft. per min. uniflow driven air compressors. The Carnegie Steel Co. is asking bids on one 8000-hp. motor and two of 7000-hp. to drive a 54-in. blooming mill and a 52-in. rougher and an intermediate mill of the same size at its Homestead, Pa., works. The Sharon Steel Hoop Co. has plans for the installation of three additional sheet mills at Youngstown which will be electrically driven from purchased power.

Builders of rolling mills have much business pending, but find the lettings slow. Besides the three sheet mills for the Sharon Steel Hoop Co. at Youngstown, the sheet and tin

mills for the Youngstown Sheet & Tube Co. at Indiana Harbor, Ind., will be definitely decided upon at an early date. By summer the Carnegie Steel Co. is expected to have out a formal request for bids for the H-beam mill that is part of the program for the modernization of that plant. An order for a 4-high 80-in. plate mill for the Lukens Steel Co., Coatesville, Pa., is pending.

To provide, in part, for the construction of an addition to its plant at Allenport, Pa., the Pittsburgh Steel Products Co., Union Arcade, Pittsburgh, is disposing of a bond issue of $3,000,000. The expansion will include new buildings and machinery estimated to cost $1,000,000. The company specializes in the manufacture of seamless steel tubing, etc. Emil Winter is president.

The United States Engineer, Pittsburgh, will receive bids until Feb. 2 for two steam-driven capstan units, complete with engine barrel, shafting gearing and bearing pedestals, circular 238. It is proposed to ask bids soon for the construction of a pump boat to be used at the locks and dams on the Ohio River, vicinity of Pittsburgh.

The Federal Enameling & Stamping Co., McKees Rocks, Pa., is reported to have preliminary plans for an addition to its plant construction probably to begin next fall. C. E. Christman is president.

The A. M. Byers Co., 235 Water Street, Pittsburgh, manufacturer of wrought iron pipe, with plants at Pittsburgh, Pa., and Girard, Ohio, has authorized a bond issue of $5,000,000 and preferred stock issue of $4,500,000, a portion of the proceeds to be used for expansion. Of the last noted issue $2,000,000 will be sold at once. The company will acquire the Orient Coal & Coke Co. as a subsidiary interest. E. M. Byers is president.

The Winding Gulf Colliery, Mine No. 2, Huntington, W. Va., is planning for the installation of a new mechanical washery at its local properties. L. Epperly is general manager.

W. W. Goldsmith, P. O. Box 171, Beckley, W. Va., is desirous of getting in touch with manufacturers of soft metal tube containers, suitable for toilet preparations, etc., with view to placing quantity order.

In connection with a proposed addition to the State normal school at Fairmont, W. Va., the State Board of Control, Charleston, will install a cold storage plant, transformer department and mechanical ash hoist. Bids are being asked on a general contract until March 2. R. A. Gillis, Fleming Building, Fairmont, is architect.

The Hope Natural Gas Co., Charleston, W. Va., has acquired property in the Big Sandy district, and is said to be planning the construction of a new pumping plant for this section. The company is a subsidiary of the Standard Oil Co. of New Jersey, 26 Broadway, New York.

Fire, Jan. 19, destroyed the coal tipple of the Francois Coal Co., Lowesville, Monongalia County, W. Va., with loss reported in excess of $40,000 including equipment. It is proposed to rebuild.

The International Nickel Co. has awarded contract to the Austin Co. for an addition to its Huntington, W. Va., plant. The main unit will be a steel frame building, 50 x 120 ft.

The Bradford Supply Co., Bradford, Pa., manufacturer of oil field machinery and equipment, has plans for a one-story machine shop at Eldred, Pa., to cost $25,000, exclusive of equipment.

St. Louis

ST. LOUIS, Jan. 26.

THE St. Louis-San Francisco Railway Co. recently purchased the following machines for its shops at Springfield, Mo.: One Heald internal grinder, one Thompson Universal grinder, one Gray frog and switch planer and one Pratt & Whitney 14-in. tool room lathe.

An appropriation of $1,000,000 has been approved by the Board of Estimates and Apportionment, St. Louis, for the construction of a municipal electric power plant, for which plans will soon be drawn.

The Board of Education, North Kansas City, Mo., is planning the installation of manual training equipment in its proposed two-story and basement high school at Twenty-third and Charlotte Streets, estimated to cost $200,000, for which it will ask bids on a general contract in February. H. D. Pampel, Finance Building, Kansas City, Mo., is architect.

The Atlas Portland Cement Plaster Co., Independence, Kan., has acquired about 675 acres near Watonga, Okla., and will install a crushing plant for cement rock production.

The United Light & Power Co., Kansas City, Mo., operating the Kansas City Power & Light Co., and other light and power utilities, is disposing of a preferred stock issue of $688,000, a portion of the proceeds to be used for extensions.

The Burch Lead & Zinc Co., Joplin, Mo., is planning the installation of a new mill on the former A. W. C. lease, consisting of about 160 acres, estimated to cost $100,000 with crushing and grinding equipment, oil engines and other power apparatus.

The Board of Education, Tulsa, Okla, will soon begin the construction of a two-story and basement manual arts school, 140 x 150 ft., to cost $150,000, with equipment. Leland I. Shumway, New Wright Building, is architect.

W. H. Meredith, Poplar Bluff, Mo., and associates, is arranging for the construction of a new hydroelectric generating plant on the Black River, near Poplar Bluff, to cost in excess of $250,000 with machinery. The Randolph-Perkins Engineering Co., 38 South Dearborn Street, Chicago, are architects and engineers.

The Scullin Steel Co., 6700 Manchester Avenue, St. Louis, has plans for a two-story addition, 60 x 60 ft., estimated to cost $30,000 with equipment.

The Common Council, Higginsville, Mo., will soon take bids for two motor-driven pumping units for installation at the municipal waterworks, each with capacity of 500 gal. per min., operating under 40-ft. head.

E. A. Liebmann, 3509 Classen Boulevard, Oklahoma City, Okla., will build a one-story ice-manufacturing plant at Thirty-fifth Street and Pennsylvania Avenue for an initial output of 40 tons per day.

The Common Council, Morrison, Okla., is planning for the installation of pumping equipment in connection with a new municipal waterworks, to cost approximately $27,000. H. G. Olmsted, 2230 West Eighteenth Street, Oklahoma City, Okla., is engineer.

The Albuquerque Gas & Light Co., Albuquerque, N. M., has preliminary plans for a new steam-operated electric generating station in the vicinity of Bernalillo, N. M., to cost $600,000 including equipment. It is purposed to use the waste from local saw mills for fuel. Arthur Prager is manager.

Cincinnati

CINCINNATI, Jan. 26.

MACHINE tool activities are on the increase, and while there has been no heavy buying, the number of orders for one and two machines points to the development of an active market. Some of the larger buyers last week were the American Can Co. for its Pacific Coast plant; the Koehring Mfg. Co., Milwaukee; the Carnegie Steel Co. for its Edgar Thomson works; the Dayton Engineering Laboratories Co. and the Delco Light Co., Dayton, Ohio, and the Southern Railway. Orders for machine tools also were received from Germany and Japan.

Railroad buying is more prospective than actual. The Louisville & Nashville has issued a list of approximately eight machines for one of its shops, and the Nashville, Chattanooga & St. Louis has a small inquiry out. The American Rolling Mill Co. has issued a list for its Ashland plant. There is also a large volume of inquiries for one and two machines from widely scattered points, a number of which are expected to be closed shortly.

The Wheeling Steel Corporation, which recently acquired property at Memphis, Tenn., is understood to be preparing plans for a large warehouse to be erected on the site, from which products of the corporation shipped by the Ohio River will be distributed to points in the South and Southwest.

O. C. Darst, 186 East Broad St., Columbus, Ohio, architect, has completed plans for a three-story automobile service, repair and garage building, 75 x 185 ft., to cost $400,000 with equipment.

The Illinois Central Railroad Co., 135 East Eleventh Place, Chicago, has arranged an appropriation of about $6,000,000 for the construction of car repair shops and freight terminal at Paducah, Ky., with locomotive erecting shop.

The Taylor Co., P. O. Box 118, Knoxville, Tenn., has inquiries out for one 10 to 12-kw. a.c. electric generator, direct-connected to steam engine, three phase, 60 cycles, 220 volts; one 8 to 10-kw. direct-connected generator, 220 volts, belted type, and one 3-hp. motor, with pulley, etc., three phase, 220 volts, 60 cycles.

The Anderson-Tully Co., Memphis, Tenn., operating saw mills, box factories, panel mill and veneer plant, is disposing of a bond issue of $1,000,000, a portion of the proceeds to be used for expansion. C. J. Tully is president.

The Somerville Iron Works, North Chattanooga, Tenn.,

has tentative plans for an addition estimated to cost $150,000 with equipment.

The Ohio Public Service Co., Mansfield, Ohio, has issued preferred stock for $3,000,000, a portion of the fund to be used for extensions and improvements in power plants and system. T. O. Kennedy is vice-president and general manager.

The Memphis Fender & Enamel Works, 55 South Fourth Street, Memphis, Tenn., has leased space in the building at 51 South Fourth Street for an addition.

Indiana

INDIANAPOLIS, Jan. 26.

BIDS have been called by the Standard Sanitary Manufacturing Co., Bessemer Building, Pittsburgh, for a four-story and basement factory branch and distributing plant, 80 x 150 ft., at Indianapolis, estimated to cost $200,000. The Hunting-Davis Co., Century Building, Pittsburgh, is architect and engineer.

The Acme Tool & Machine Co., Indianapolis, has removed its plant from 1306 Brookside Avenue to larger quarters at 924 Fort Wayne Avenue, where additional equipment will be provided.

The Evansville Planing Mill Co., Evansville, Ind., is having plans drawn for a one-story factory, 120 x 150 ft., to cost approximately $38,000 with equipment. William Johann is general manager.

The Ohio Valley Roofing Co., Evansville, Ind., has plans for a new building adjoining its present works at 222 Division Street, to cost about $50,000. A. J. Becker is president.

The Board of Trustees, Gibault Home for Boys, Allendale, Terre Haute, Ind., is having plans prepared for a new power house to cost $45,000, for which it is expected to ask bids on a general contract during February. The Shourds-Stoner Co., Tribune Building, Terre Haute, is architect.

The Holt & Brandon Ice & Cold Storage Co., 820 Walnut Street, Evansville, Ind., is considering a new ice-manufacturing and cold storage plant to cost approximately $150,000 with machinery.

The Wadley Co., Inc., 301-11 South First Street, Terre Haute, Ind., dealer in provisions, will soon take bids for a two-story and basement cold storage and packing house addition to cost approximately $250,000, with equipment. The Shourds-Stoner Co., Tribune Building, is architect and engineer. Scott C. Wadley is president.

The Wayne Tank & Pump Co., Fort Wayne, Ind., has acquired the plant and business of the Continental Oil Burner Co., Chicago, and will consolidate with its organization. It is proposed to remove the Chicago business to the Fort Wayne plant, where a department will be equipped for oil burner production.

The Berryhill Malleable Iron Co., a new organization at Evansville, Ind., will soon place a contract for the construction of a foundry.

Eli Lily & Co., Indianapolis, manufacturers of pharmaceuticals, have awarded contract to Leslie Colvin, local, for a five-story factory, for which considerable equipment will be required, including a system of roller conveyors.

The Chicago & Eastern Illinois Railroad contemplates the construction of a terminal at Evansville, Ind., to include engine house, boiler shop, forge shop, planing mill and power house.

Gulf States

BIRMINGHAM, Jan. 26.

PRELIMINARY plans are under consideration by the Texas & Pacific Railroad Co., Dallas, Tex., for rebuilding the portion of its car shops at Marshall, Tex., destroyed by fire Jan. 16, with loss estimated at $200,000 including equipment.

The Gloster Lumber Co., Natchez, Miss., is said to be planning for the construction of a hydroelectric power house on the Homochitto River, to cost $175,000 with equipment.

The Missouri, Kansas & Texas Railroad Co., St. Louis, is arranging for the construction of a locomotive shop and other buildings for car repair work, in connection with proposed extensions in its yards at Fort Worth, Tex., estimated to cost $750,000 with machinery.

The Brewton-Nienstedt Lumber Co., Palmetto, La., has plans for a new lumber and saw mill, with power house, estimated to cost $150,000. A portion of the equipment will be removed from an existing mill at Miltonburg, La.

The Sudor Lumber Co., Conroe, Montgomery County, Tex., is planning to rebuild the portion of its lumber mill and woodworking plant destroyed by fire Jan. 19, with loss estimated at $100,000 including equipment.

The El Paso Electric Co., El Paso, Tex., is disposing of a preferred stock issue of $1,500,000, a portion of the proceeds to be used for extensions and improvements.

The Perry Electric Co., Perry, Fla., is arranging for a one-story cold storage and refrigerating plant adjoining its works to cost $35,000.

The Carbo Steel Products Co., 2600 West Eleventh Street, Chicago (Morgan Station), manufacturer of standardized steel buildings, is said to be planning the establishment of a branch factory at Jacksonville, Fla.

The Consolidated Gasoline Co., Eastland, Tex., contemplates the construction of a one-story gasoline plant west of the city limits, to be operated under a waste heat process, to cost $300,000 with equipment.

The City Council, Fort Lauderdale, Fla., is contemplating the installation of pumping equipment in connection with extensions and improvements in the municipal waterworks, estimated to cost $120,000.

The Standard Oil Co. of Louisiana, Reymond Building, Baton Rouge, La., has acquired about ten acres, and is said to be arranging for the construction of a new plant to manufacture paraffin and kindred petroleum by-products.

The Board of Education, St. Petersburg, Fla., is planning the installation of manual training equipment in a proposed high and grade school on 20 acres recently acquired, estimated to cost $1,000,000. William B. Ittner, Board of Education Building, St. Louis, is architect.

The Common Council, Mansura, La., has authorized the construction of a municipal electric power plant and extensions in the waterworks, to cost $50,000 with equipment.

The Big Lake Oil Co., Big Lake, Tex., will erect a one-story refining and skimming plant to cost $200,000 with machinery. Levi Smith is president, with headquarters at San Angelo, Tex.

The Magic City Furniture & Mfg. Co., Birmingham, recently organized, is planning the construction of a factory to cost $50,000 with equipment. John Z. Hinds, 108 Lucy Avenue, is secretary and treasurer.

The City Commission, Amarillo, Tex., plans the installation of pumping machinery and auxiliary equipment in connection with a proposed municipal waterworks, estimated to cost $1,750,000. A special election has been called on March 7 to vote bonds.

Milwaukee

MILWAUKEE, Jan. 26.

FROM the standpoint of foundries and machine shops, the revival of business has become definite and manufacturers of machine tools find much encouragement in the prospects for new business. Current sales show improvement, but business has not passed the replacement stage. Trade since the middle of the month has been relatively more active than in the first two weeks and inquiries are increasing steadily.

The Nordberg Mfg. Co., Milwaukee, has been awarded contract by the Government for furnishing three 6-cylinder, 29 x 44-in. Diesel engines, of 3750-hp. each for an auxiliary generating installation in the Panama Canal Zone. Shipment of the first engine is estimated in eight months.

The Jenkins Machine Co., 315 North Eighth Street, Sheboygan, Wis., has plans by Edward A. Juul, local architect, for a two-story brick and concrete extension, 47 x 150 ft., Part will be used for offices. The concern manufactures wood-working machines, automobile body equipment and special tools.

The Globe Electric Co., 14-40 Keefe Avenue, Milwaukee, which is now engaged in manufacturing radio receiving sets, will build a one-story addition, 35 x 120 ft., for manufacturing cabinets, and is buying a line of wood-working tools. The machine-shop equipment also is receiving some additions. John D. Wanvig, Jr., is secretary.

The Twin Ports Bridge Co., Superior, Wis., has been incorporated with a nominal capital of 500 common shares without par value to engage in the fabrication and erection of steel bridges, buildings, towers, tanks, etc. The enterprise is still in a formative state, according to C. J. Hartley, attorney, representing the principals, O. J. Johnson and J. L. Fritschler. The intention is to lease a building which already contains some fabricating equipment, but some major items will be needed.

The Marcus Realty Co., Milwaukee, has let the general contract to the Eckerman-Ruddel Co., local builder, to erect a two-story brick and concrete manufacturing plant,

50 x 150 ft., at Thirty-first Street and Auer Avenue. The nature of the plant and the identity of the occupants will not be revealed for the present. An investment of $65,000 is contemplated.

The Samson Wrench Co., LaCrosse, Wis., has been organized with $30,000 capital stock, by George W. Kelley, Louis R. Corbeil and Lloyd O. Benoit to manufacture mechanics' tools, principally special wrenches for the automotive industry, and general machine shop. Plans for production are now being formulated.

The Wisconsin Highway Commission, 149 East Wilson Street, Madison, Wis., will take bids until Feb. 2 for furnishing 10,000 to 15,000 metal highway markers and a similar number of channel iron posts for 1925 work on the trunk highways of the State.

The Andis O. M. Mfg. Co., Racine, Wis., manufacturer of electric hair clippers and other small motor tools, has changed its corporate style to All Over Mfg. Co. Some changes have been made in the organization and larger production is planned.

The Wisconsin Tractor Co., Sauk City, Wis., has been incorporated with $25,000 capital stock to take over a local tractor plant and resume its operation. The principals are E. F. McFarland, C. J. Pulvermacher and J. J. Schneider, all of Sauk City. Some changes and replacements of equipment will be made.

The Eau Claire, Wis., Equipment & Machinery Co., capital stock $10,000, has been organized to manufacture machinery, equipment and tools, with special reference to the building and contracting industry. For the time being only assembling processes will be undertaken. Later a shop will be built. The principals are C. L. Tolles, A. J. Keith and Otto von Schrader.

South Atlantic States

BALTIMORE, Jan. 26.

THE Sinclair Refining Co., 45 Nassau Street, New York, has obtained property in the South End district, Cumberland, Md., as a site for a new oil storage and distributing plant, including service, repair and garage building to cost about $90,000.

The Fire Department, Baltimore, will soon ask bids for new boilers and oil-burning equipment for the fireboat Cataract, estimated to cost $45,000.

D. C. Elphinstone, Continental Building, Baltimore, machinery dealer, has inquiries out for a 20-ton, locomotive crane, standard gage; a 20-ton, 8-wheel locomotive crane, with 50-ft. boom; 20 36-in. gage, dump cars, with V-shape or flat bottom, and one truck crane, 25-ft. boom, with ½-yd. capacity bucket.

The Southern Virginia Power Co., Martinsville, Va., recently organized by John Sanford, Martinsville, and associates, has preliminary plans for the construction of a hydroelectric generating plant at Eggleston Falls, Smith River, with 40-ft. power dam, estimated to cost $350,000 with machinery.

Wardman & Waggaman, 1430 K Street, N. W., Washington, architects, have plans for a two-story automobile service, repair and garage building, 50 x 290 ft., at 3000 Connecticut Avenue, N. W., estimated to cost $200,000 with equipment.

The Waverly Ice Co., Waverly, Va., recently organized by H. A. Harrison, head of the Crystal Ice & Coal Corporation, Berkley, Va., has acquired a local ice-manufacturing plant. It will be remodelled and additional equipment installed.

The Wilson-Hock Co., City Point, Va., machinery dealer, has inquiries out for an engine-generator set, 150 kw., three-phase, 60 cycles, 220 volts; one screwcutting lathe, 36-in. swing; one pressure tank, 3000 to 5000-gal. capacity, to operate at 150 lb. pressure, and one flywheel, 11 ft. diameter, and 32-in. face, made in two sections, for use with 250-hp. Corliss engine, to weigh approximately five tons.

The Gold Dust Corporation, 239 West Thirtieth Street, New York, manufacturer of washing powders, plans the construction of a power house at its proposed plant on 15-acre tract in the Canton district, Baltimore, estimated to cost approximately $500,000. Lockwood, Greene & Co., 24 Federal Street, Boston, are architects and engineers.

The Dimension Mfg. Co., Asheville, N. C., recently formed with a capital of $250,000, has acquired property on the Black Mountain Highway, Swannanoa, N. C., and plans the erection of a new wood-working and lumber mill to cost about $100,000 with machinery. Junius G. Adams, 15 Church Street, Asheville, heads the company.

The Studebaker Co., 1631 Fourteenth Street, N. W., Washington, has plans for a three-story service, repair and garage building, 150 x 150 ft., to cost $150,000 with equipment. Frederick B. Pyle, 1420 New York Avenue, N. W., is architect. Joseph Reynolds is in charge.

The United States Engineer, Wilmington, Del., will receive bids until Feb. 2, for two locomotives and 20 side dump cars, circular 104.

The Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until Feb. 3 for one motor-driven centrifugal pump for the submarine base in Connecticut, schedule 3205; for bolts and nuts for Eastern and Western yards, schedule 3226; for wire, brass, copper, steel and bronze, schedule 3232; for crucibles for Eastern and Western yards, schedule 3234; until Feb. 10, for 194 electric soldering irons for the Mare Island yard, schedule 3222.

The Board of Education, Columbus, Ga., plans the installation of manual training equipment in the proposed two-story high school to be erected in the Wildwood Park section, to cost $200,000. Hickman & Martin, Swift Building, are architects.

The Central Power Co., North Wilkesboro, N. C., care of the Chamber of Commerce, has preliminary plans for the construction of a hydroelectric generating station on the New and Reddies Rivers, about 12 miles from the city, to cost in excess of $250,000 with transmission line.

Motors, ovens, conveying and other machinery will be installed in the addition to be constructed at the plant of the F. O. Stone Baking Co., Highland Avenue, Atlanta, Ga., estimated to cost $200,000. The McCormick Co., Inc., 41 Park Row, New York, is architect.

Canada

TORONTO, Jan. 26.

INTEREST in machine-tools in this market consists of inquiries. Sales during the past ten days have been limited and confined almost entirely to one or two tools to an order. Dealers and builders are optimistic and state that a good volume of business is in sight and should develop in about six weeks. It is expected that the Canadian National Railways and the Canadian Pacific Railway, will shortly be in the market for tools for shop replacement.

Strong competition in this market is noted from foreign builders and especially from the United States. During the eight months of the fiscal year ending with November, machinery and tool imports (excluding agricultural), reached a total of $16,766,889, of this amount $14,605,905 was imported from the United States.

Bids are being received by Angus Smith, engineer, Riverside, Ont., until Feb. 2, for the construction of a pump house, wells, pipes and valves, pumps and motors, air compressor, etc.

Construction has started on rebuilding the factory at Owen Sound, Ont., for the Northern Bolt, Screw & Wire Co., to replace that recently damaged by fire.

The Capital Wire Cloth & Mfg. Co., Ottawa, Ont., has let the general contract to Cuthbertson & Clark, for an addition to its plant to cost $20,000. Richards & Abra are architects.

The Laurentide Power Co., Grand Mere, Que., contemplates an addition to the water power development to cost $600,000. H. Wardel is engineer.

The Montreal Cotton Co., is having plans prepared for a water power development plant at Valleyfield, Que., to cost $75,000. Beaubien Rusfield & Co., Montreal, are the engineers.

The Toronto Wire & Nail Co., Ltd., Toronto, has been incorporated to take over the wire and nail business of the P. L. Robertson Co., Ltd., Milton, Ont. The Toronto plant will be at 190 Edwin Avenue. Those interested in the new concern are E. R. Hutchinson, George Robinson and Charles Prosser, all of whom were connected with the P. L. Robertson Co.

Pacific Coast

SAN FRANCISCO, Jan. 21.

WORK will begin on a one-story machine shop, 75 x 150 ft., for the Mongerson Electric Co., 2328 Chester Avenue, Bakersfield, Cal. A general building contract has been let to J. N. Harvey, 324 Eighth Street.

The California Metal Enameling Co., 2155 East Fifty-first Street, Los Angeles, has acquired about seven acres, and plans the construction of a new factory for stove and refrigerator enameling and casting work.

The Marr & Colton Co., Warsaw, N. Y., manufacturer of pipe organs, has negotiations under way with the Chamber of Commerce, Santa Cruz, Cal., for a site for a proposed Pacific Coast branch plant, estimated to cost $100,000 with machinery.

The Washington Door & Manufacturing Co., Hoquiam, Wash., manufacturer of garage doors, etc., will erect a one-story plant, 60 x 200 ft., to cost $32,000.

The Board of City Trustees, Santa Barbara, Cal., has called a special election on Feb. 24, to vote bonds for $140,000, the proceeds to be used for a municipal hydroelectric generating plant and distributing system.

The Liberty Auto Co., 230 West Washington Street, Los Angeles, manufacturer of automobile radiators, bodies, etc., has plans for a new one-story factory, 75 x 330 ft., to cost $70,000 with equipment. J. M. Cooper, Marsh-Strong Building, is architect.

The California Crushed Fruit Co., Los Angeles, contemplates the installation of a cold storage and refrigerating plant in its three-story factory, for which plans are being drawn by C. E. Finkenbinder, Story Building, achitect.

Bids will be received by the Bureau of Supplies and Accounts, Navy Department, Washington, until Feb. 3, for 164 steel boiler tubes for the navy station at Keyport, Wash., schedule 3210; for four propeller or disk type fans, motor-driven, and two sets of spare parts, for the Puget Sound yard, schedule 3237, and until Feb. 10, for 3050 lb. copper tubing for the same yard, schedule 3188.

The McClellan Mfg. Co., 951 South Los Angeles Street, Los Angeles, manufacturing of furniture, has awarded a general contract to the Austin Co. for a new plant comprising two one-story buildings, 200 x 235 ft., and 50 x 100 ft., to cost $75,000.

The Diamond Ice Co., San Diego, Cal., will begin the erection of a new ice-manufacturing plant estimated to cost $100,000 including equipment. H. B. Mason, 3526 West Slauson Avenue, Los Angeles, is architect and engineer.

The Fidalgo Pulp Mfg. Co., Anacortes, Wash., will proceed with the construction of a new plant consisting of six buildings, 70 x 160 ft., 50 x 100 ft., 40 x 70 ft., and three each 40 x 60 ft., estimated to cost $125,000, with equipment. R. S. Talbot heads the company.

The Shaw-Bertram Lumber Co., Klamath Falls, Ore., is considering the construction of a box manufacturing plant to cost $40,000 with equipment.

Trade Changes

Barton R. Shover, consulting engineer, 426 Oliver building, Pittsburgh, has announced the acquisition of the business of the late Harry F. Randolph, who prior to his death last August was a consulting engineer, specializing in coal mining work.

The Pittsburgh Valve Foundry & Construction Co., Pittsburgh, has appointed the R. J. Crozier Co., Fuller Building, Philadelphia, as sales representative in the Philadelphia district.

The Baker Dunbar Co., Cleveland, maker of ash gates and hoppers, announces that Wolff & Co., Wrigley Building, Chicago, have been appointed its Chicago territorial representatives.

At the annual meeting of directors of Gardiner & Lewis, engineers and manufacturers, specializing in protection against water and corrosion, 30 Church Street, New York, the following officers were elected for the coming year: President, Richard W. Lewis; vice-president, Russell B. Reid; treasurer, Richard W. Lewis; secretary, Jacob W. Winkler.

A. I. Goodman and Abraham Stine disposed of their interests in L. Stine & Co., Beatrice, Neb., to the Northwestern Iron & Metal Co., Lincoln, Neb. The business will be continued under the same name but as a branch of the Northwestern company.

The McClintic-Marshall Co., Pittsburgh, has acquired the Kenwood Bridge Co.

The Main Leather Belting Co., John J. McDonald, Pacific Coast manager, has placed its entire stock with the Industrial Belting & Supply Co., 364 Sixth Street, San Francisco. Mr. McDonald retains his position as Pacific Coast manager and will make his headquarters with the Industrial Belting & Supply Co.

The Oriental Supply Syndicate, Inc., distributor of mill and mine supplies, has changed its name to John R. Gray, Inc. Offices will remain at 686-688 Howard Street, San Francisco.

The Boston office of the Ludlow Valve Mfg. Co. has been moved from 112 Water Street to the Tremont Building, Tremont Street.

The Halligan Pipe & Supply Co., jobber in wrought pipe and fittings, 900 South Campbell Avenue, Chicago, has changed its corporate style to the Federal Pipe & Supply Co.

The Unity Sheet & Steel Co. is the new corporate title adopted by the Unity Sheet Metal Supply Co., Sixteenth and Canal Street, Milwaukee. L. R. Moise is secretary.

The Cincinnati office of J. F. Corlett & Co., steel merchants, has been moved from 607 First National Bank Building to 825 Union Trust Building.

Business of the Duplex Engine Governor Co. has been turned over to the Eisemann Magneto Corporation, Brooklyn, which will continue the production of turbine governors.

The Foote Brothers Gear & Machine Co., Chicago, has completed arrangements with F. Somers Peterson Co., San Francisco, for the distribution of its gear products and speed reducers in northern California; and with the Thomas Machinery Co., Los Angeles, for distribution in southern California.

The Wyckoff Drawn Steel Co., Pittsburgh, announces the removal on Feb. 1 of its Boston office from the Little Building to larger quarters in the new Chamber of Commerce Building. Henry A. Getty is New England district manager of sales.

The McMyler-Interstate Co., Cleveland, has moved its Detroit office from 1701 Washington Boulevard Building to 1156 Brook Building, effective Feb. 1.

The Michigan Bearings Co., 219 Garfield Building, Detroit, capitalized at $35,000, has been organized to handle the sale of genuine and replacement automobile parts. H. Schuman is one of the principals.

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Current Metal Prices

On Small Lots, Delivered from Merchants' Stocks, New York City

The following quotations are made by New York City warehouses.

As there are many consumers whose requirements are not sufficiently heavy to warrant their placing orders with manufacturers for shipments in carload lots from mills, these prices are given for their convenience.

On a number of items the base price only is given, it being impossible to name every size.

The wholesale prices at which large lots are sold by manufacturers for direct shipment from mills are given in the market reports appearing in a preceding part of THE IRON AGE, under the general heading of "Iron and Steel Markets" and "Non-Ferrous Metals."

Bars, Shapes and Plates

	Per Lb.
Bars:	
Refined iron bars, base price	3.24c.
Swedish charcoal iron bars, base	7.00c. to 7.25c.
Soft steel bars, base price	3.24c.
Hoops, base price	4.49c.
Bands, base price	3.99c.
Beams and channels, angles and tees, 3 in. x ¼ in. and larger, base	3.34c.
Channels, angles and tees under 3 in. x ¼ in., base	3.24c.
Steel plates, ¼ in. and heavier	3.34c.

Merchant Steel

	Per Lb.
Tire, 1½ x ½ in. and larger	3.20c.
(Smooth finish, 1 to 2½ x ¼ in. and larger)	3.55c.
Toe-calk, ½ x ⅝ in. and larger	4.20c.
Cold-rolled strip, soft and quarter hard	7.00c.
Open-hearth spring steel	4.50c. to 7.00c.
Shafting and Screw Stock:	
Rounds	4.15c.
Square, flats and hex	4.65c.
Standard tool steel, base price	15.00c.
Extra tool steel	18.00c.
Special tool steel	23.00c.
High-speed steel, 18 per cent tungsten	70c.

Sheets

Blue Annealed

	Per Lb.
No. 10	3.89c.
No. 12	3.94c.
No. 14	3.99c.
No. 16	4.09c.

Box Annealed—Black

	Soft Steel C. R. One Pass Per Lb.	Blued Stove Pipe Sheet Per Lb.
Nos. 18 to 20	4.30c. to 4.45c.	.....
Nos. 22 and 24	5.15c. to 5.35c.	
No. 26	4.50c. to 4.65c.	5.15c.
No. 28*	4.60c. to 4.75c.	5.25c.
No. 30	4.70c. to 4.95c.	.....

Galvanized

	Per Lb.
No. 14	4.70c. to 4.85c.
No. 16	4.85c. to 5.00c.
Nos. 18 and 20	5.00c. to 5.15c.
Nos. 22 and 24	5.15c. to 5.30c.
No. 26	5.30c. to 5.45c.
No. 28*	5.60c. to 5.75c.
No. 30	6.10c. to 6.25c.

*No. 28 and lighter, 36 in. wide, 20c. higher per 100 lb.

Welded Pipe

Standard Steel	Black	Galv.	*Wrought Iron*	Black	Galv.
⅛ in. Butt...	46	29	⅛ in. Butt...	4	+19
¼ in. Butt...	51	37	¼ in. Butt...	11	+ 9
1-3 in. Butt..	53	39	1-1½ in. Butt.	14	+ 6
2½-6 in. Lap.	48	35	2 in. Lap....	5	+14
7 & 8 in. Lap.	44	17	3-6 in. Lap...	11	+ 6
11&12 in. Lap.	37	12	7-12 in. Lap..	3	+16

Bolts and Screws

Machine bolts, cut thread, 45 and 10 per cent off list
Carriage bolts, cut thread,
35 to 35 and 10 per cent off list
Coach screws, 45 and 10 per cent off list
Wood screws, flat head iron,
75, 20, 10 and 5 per cent off list

Steel Wire

BASE PRICE* ON No. 9 GAGE AND COARSER	Per Lb.
Bright, basic	4.25c. to 4.50c.
Annealed soft	4.50c. to 4.75c.
Galvanized annealed	5.15c. to 5.40c.
Coppered basic	5.15c. to 5.40c.
Tinned soft Bessemer	6.15c. to 6.40c.

*Regular extras for lighter gage.

Brass Sheet, Rod, Tube and Wire

BASE PRICE

High brass sheet	19⅝c. to 20⅝c.
High brass wire	20⅛c. to 21⅛c.
Brass rods	17⅝c. to 18⅝c.
Brass tube, brazed	27⅝c. to 28⅝c.
Brass tube, seamless	24¼c. to 25¼c.
Copper tube, seamless	25¼c. to 26¼c.

Copper Sheets

Sheet copper, hot rolled, 23c. to 24c. per lb. base.
Cold rolled, 14 oz. and heavier, 3c. per lb. advance over hot rolled.

Tin Plates

Bright Tin		Coke—14 x 20	
Grade "AAA" Charcoal 14x20	Grade "A" Charcoal 14x20	Prime	Seconds
		80 lb...	$6.15 $5.90
		90 lb...	6.30 6.05
		100 lb...	6.45 6.20
IC..	$11.25 $8.85	IC..	6.65 6.40
IX..	12.85 10.85	IX..	7.85 7.60
IXX..	14.40 12.55	IXX..	9.00 8.75
IXXX..	15.75 13.85	IXXX..	10.35 10.10
IXXXX..	17.00 15.05	IXXXX..	11.35 11.10

Terne Plates

8 lb. coating, 14 x 20

100 lb.	$7.00 to $8.00
IC	7.25 to 8.25
IX	8.25 to 8.75
Fire door stock	9.00 to 10.00

Tin

Straits, pig	61c.
Bar	68c. to 70c.

Copper

Lake ingot	16¾c.
Electrolytic	16½c.
Casting	16 c.

Spelter and Sheet Zinc

Western spelter	9¼c.
Sheet zinc, No. 9 base, casks	12c. open 12½c.

Lead and Solder*

American pig lead	11¼c. to 12c.
Bar lead	15c.
Solder, ½ and ½ guaranteed	42c.
No. 1 solder	39½c.
Refined solder	33c.

*Prices of solder indicated by private brand vary according to composition.

Babbitt Metal

Best grade, per lb.	75c. to 90c.
Commercial grade, per lb.	35c. to 50c.
Grade D, per lb.	25c. to 35c.

Antimony

Asiatic	20c.to 21c.

Aluminum

No. 1 aluminum (guaranteed over 99 per cent pure), in ingots for remelting, per lb.	36c.

Old Metals

The market is firmer and inquiries are more active. Dealers' buying prices are as follows:

	Cents Per Lb.
Copper, heavy crucible	12.75
Copper, heavy wire	12.50
Copper, light bottoms	10.50
Brass, heavy	8.00
Brass, light	6.75
Heavy machine composition	9.50
No. 1 yellow brass turnings	9.00
No. 1 red brass or composition turnings	9.00
Lead, heavy	8.50
Lead, tea	6.75
Zinc	4.50
Cast aluminum	17.00
Sheet aluminum	17.00